









ORIGINAL ARTICLE OPEN ACCESS

The Minimum Age of Criminal Responsibility Internationally—History, Systems and the Future

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ABSTRACT

Background: In most countries, a criminal conviction requires evidence that the individual committed the act *and* that they had the mental capacity to understand what they were doing and that it was wrong. Youth, as an indicator of brain development, is one factor affecting criminal capacity. Worldwide, this has commonly been managed in part by setting in law an age below which criminal incapacity is presumed, so no prosecution is possible. Considerable variation in the MACR was confirmed across 195 countries. Some countries have no MACR. Otherwise, the MACR ranges from 7 years (some African and South Asian countries) to 18 (some South American countries); many North Asian, European and a few African countries set theirs at 14 which is the most frequently found level, and also the minimum age recommended by the United Nations Convention on the Rights of the Child. Therefore, how do countries set or change their MACR?

Aims: To explore change, efforts to change and impact of change in MACR internationally.

Methods: Between February 1st 2022 and December 31st 2023, members of an international research group (GIRAF—Group of International Researchers in Adolescent Forensics) were asked to complete an emailed questionnaire about changes in the MACR, or efforts to change it, in their country since 2000. Reports were then collated, circulated and discussed within the group.

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Results: Among the 14 countries responding in detail about the MACR, efforts to raise the MACR had been successful in three, but in nine such efforts had been unsuccessful; in at least two countries pressures were to lower their MACR, but in only one, Denmark, did that happen (from 15 to 14) in the data collection period (though this change was subsequently reversed). Factors most influencing retention of a lower age were exceptional individual cases, which triggered press and political interest in retaining a higher age, and well-evidenced and developed arguments from legal, social and medical or other clinical bodies.

Conclusions and Implications: The wide differences in the MACR between countries suggest under-use of evidence in deciding it. We need more governmental willingness to bring the MACR at least to the UN-recommended level—but accompanied by research into the impact of this. Efforts targeted exclusively on child and adolescent welfare may have less effect if they also force children through the criminal justice system, with consequent impact on self-identity and sense of citizenship. A low MACR is also likely to be more directly and indirectly costly than a higher one.

1 | Introduction

In almost all countries, a criminal conviction is founded on two strands—first the commission of the act, and second, the ‘guilty mind’ (Jonas 2021). Various abnormal mental states may be allowed as reducing or removing culpability at any age. The minimum age of criminal responsibility (MACR) is the lowest age at which a child may be held criminally responsible for their actions. Under this age, no child may be tried in a criminal court. There is a marked degree of variation around the globe on where the age is set. As shown in Figure 1, the lowest formally recorded minimum age is set at 7 and the highest at 18. A small number of countries have no minimum age of criminal responsibility, such that responsibility must be determined in each individual case.

Data used for this map were collected by the principal researcher over several years of studying penal code in 195 countries around the world (see Table S1 for details), up to December 2023. Adding to the complexity, 26 countries vary the minimum age according to the seriousness of the offence and 10 countries operate a minimum age that is different for boys versus girls. There are at least five countries where Sharia law operates alongside state-mandated or federal law. 13 countries, and the majority of states in the USA, technically have no

MACR, although states in the USA can defer to the federal position. Finally, 6 countries have multiple established legal processes in relation to the MACR; one example is Gaza (Occupied Palestinian Territory), where tribal adjudication, military law, precedent and common law can each operate depending on the circumstances (see Table S1 for detailed referencing and notes).

The United Nations (UN) Convention on the Rights of the Child (1989) stipulates, without specifying an age, that states should establish a minimum age ‘below which children shall be presumed not to have the capacity to infringe penal law’ (1, Art.40 (3) (a)), with commentary on children’s rights in the criminal justice system (UN Committee General 2019). The latter revised the recommended minimum age to be no younger than 14 years of age.

Setting the minimum age of criminal responsibility is complicated—not just because of research developments, which highlight wide variation between individuals and multiple factors affecting the pathway to maturity but also due to country-specific factors pertaining to the general management of young people in youth justice systems. One such variation is *doli incapax*. This is a court protection which is usually applied to those aged 10–14 years. It follows the presumption that children

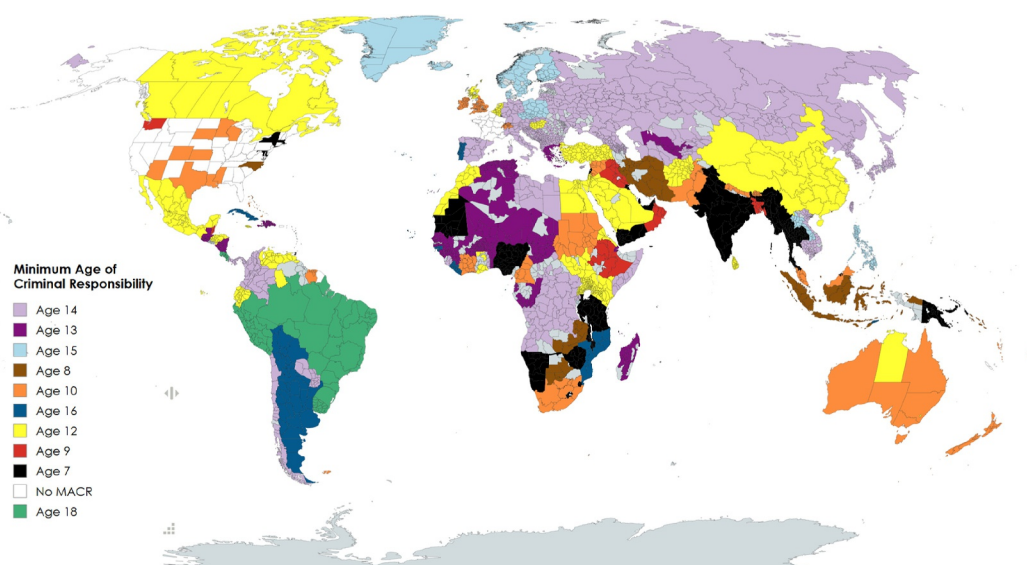


FIGURE 1 | The Minimum Ages of Criminal Responsibility Internationally (up to December 2023).

in this age bracket are unable to know that their actions were seriously wrong, but is rebuttable in a court (in contrast to the position of those under the MACR, where *doli incapax* is not rebuttable). There are currently 66 countries which have a rebuttable *doli incapax*-type protection for children, with details given in the Table S1.

The degree of variation in the MACR across the globe and the extent to which countries are more or less willing to vary this with growing knowledge about child development or other factors led us to focus on countries where there had been change—and to ask how this happened.

2 | Methods

Members of an international research team (GIRAF—Group of International Researchers in Adolescent Forensics), an informal and open online group of people working in the field of child and adolescent forensic mental health from across the world, were consulted about the MACR (for a full list of participating countries see appendix). The countries selected were chosen on the basis of available evidence of recent or historic efforts to change the MACR. Members were asked about the historical context of national law on the MACR in their countries, particularly over the preceding 20 years, the approximate timeframe over which the authors had been working in this field. Each country participant or group of participants who reported historical changes of the MACR, or efforts to change it, were asked to detail (1) the current MACR in their country, (2) the nature of any *doli incapax* protection or analogue and (3) an historical description of the pathway to the current MACR. Questions were then refined, homogenised and discussed over the allotted time period February 1st 2022 to December 31st 2023 through online meetings and emails between all authors—due to the international timezone differences not all members were able to attend all meetings but were given opportunity to comment through emails. Through the discussions we endeavoured to ensure consistency of theme across the countries. The authors also cross-checked their information against existing data from databases such as the Child Rights International Network website and the Crime and Punishment Around the World (Newman et al. 2010) textbooks, and established the reasons for any differences found.

3 | Results

Efforts to change MACR were noted in 12 countries—14 if including the three UK constituent jurisdictions as separate countries. It is usually impossible to pinpoint the start of a movement for change. In three countries, with a MACR of 10 or less, the age was raised, but in all others the process has, to date, either failed or stalled. One country, Denmark, lowered its minimum age of criminal responsibility—from 15 to 14—but changed it back to 15 after two years. Other countries with a higher MACR have faced calls for a reduction. Efforts towards change and outcomes in each of these countries are described in alphabetical order of country below and in Table 1. All relevant

laws and codes are detailed in the Table S1 (academic and review report references immediately follow this text).

3.1 | Argentina

Currently, young people in conflict with the law are covered by the ‘Penal Regime for Minority’ of the Argentine Republic (Decree-Law 22 1983). This establishes that adolescents are not punishable until they are 16 years of age, though they may, through trial of the facts, get a formal record which can then be taken into consideration if they commit another crime at 16 or over. The MACR has remained at 16 despite some efforts to reduce it to 13.

For those aged 16 to 18, prosecution can only happen if the offence would ordinarily be punishable by deprivation of liberty for more than 2 years (Penal Regime for Minors 1980). Emphasis would be on safeguarding as many of the privileges of childhood as possible and measures, including monitoring, to promote desistance (Terragni 2015).

3.2 | Australia

Australia has six states and two territories, each with its own government, parliament and laws. Each has progressively legislated to set the MACR at age 10, with the Australian Capital Territory and Tasmania being the last jurisdictions where, before 2000, the MACRs were eight and seven years, respectively (Urbas 2000).

The 2017 Royal Commission into the Detention and Protection of Children in the Northern Territory recommended raising the MACR from 10 to 12. In April 2018, the Northern Territory committed to doing so and became the first Australian jurisdiction to enshrine this in law, in November 2022, with a promise to review the impact of the changes and consider a further increase to 14 after two years (ABC News 2022). However, subsequently the MACR was lowered back to 10 following a change in government (ABC News 2024).

In 2018 Australia’s eight Attorneys-General established a working group to review the MACR nationally. In 2019 submissions were invited on raising MACR from 10 to 14. In November 2021, the Attorneys-General decided to support development of a proposal to raise the age from 10 to 12 (Standing Attorneys General Communiqué 2021).

Bills nevertheless followed to support a MACR of 14, immediately (2020) in the New South Wales and Queensland parliaments, whilst in 2021 the Australian Capital Territory committed to a phased increase to 12 in 2023 and to 14 in 2025 (ABC News 2023), as, in 2023, did the Victorian Government—to reach 14 by 2027.

In December 2022, the draft Final Report of the 2020 Council of Attorneys-General Age of Criminal Responsibility Working Group was made public, including the recommendation to ‘raise

TABLE 1 | Minimum Age of Criminal Responsibility (MACR) and its timeline in countries in the GIRAF study.

Country	Minimum age of criminal responsibility	<i>Doli incapax</i> / analogous protection	Stratification of MACR based on seriousness of crime	Notes
Argentina	16	No	Yes	16 since 1983. 16- and 17-year-olds can only be prosecuted for serious offences (2 years' detention or over) but state of development is a primary consideration (vs. the offence).
Australia	10 (12 in the Northern Territory)	Yes (10 up to 14)	No	10 since 2000 across all 6 states and 2 territories. 12 in NT.
Denmark	15	No	No	15 since 1930 but briefly lowered to 14 (2010–2012). Youth Crime Boards do operate for 10–17 year olds—issue a 'plan of improvement'
Finland	15	No	No	15 since 1889. 15–18 year olds can have punishment waived if behaviour 'thoughtless or imprudent'.
France	No minimum age set	Yes (0 up to 18)	No	Culpability relies on 'discernment' (understanding offence and consequences)—under 13s presumed to lack discernment.
India	7	Yes (7 up to 12)	No	7 since 1860. To be culpable from 7–12 the child must have sufficient maturity of understanding to judge the nature and consequences of their conduct. Age of majority is 17.
Ireland	10	No	Yes	10 since 2001. Children aged 10 or 11 can only be convicted of serious offences—the Director of Public Prosecutions/Attorney General needs to consent to any sentencing for those aged 10–14.
The Netherlands	12	No	No	12 since 1965. 16–23 year olds can be dealt with by the juvenile justice system.
New Zealand	10	Yes (10 up to 4)	Yes	Children aged 10 or 11 are only deemed to be criminally responsible for murder or manslaughter. Those aged 12 and 13 are only deemed to be responsible for serious offences carrying lengthy tariffs.
Portugal	16	No	No	16 since 1911. Some hopes to raise to 18.
Sweden	15	No	No	15 since 1864 (and C13th in some areas).
UK (England and Wales)	10	No	No	10 since 1963. Media pounce on any suggestions to increase it. Some high-profile cases remain in the public consciousness.
UK (Northern Ireland)	10	No	No	No major changes despite a Youth Justice Review recommending 14.
UK (Scotland)	12	No	No	12 since 2019. Children's hearings for those under 16 which can only result in welfare interventions.

the age of criminal responsibility to 14 without exception' (Council of Attorneys-General 2020).

This has been an interactive process, with largely professional and voluntary bodies campaigning for the legislative review, government responses feeding back into the review and strong national and state-based campaigning to #RaiseTheAge continuing. Despite these efforts, during the data collection period, no increase from the age of 10 had occurred in any state or territory.

3.3 | Denmark

The minimum age of criminal responsibility in Denmark has been 15 years of age since 1930. From this high age relative to most other countries, pressures have arisen to reduce it. Between 2010 and 2012 it was lowered to 14, following right wing political pressure (Lappi-Seppälä and Storgaard 2014). A post-reduction evaluation found that 14-year-olds processed through the criminal justice system after this age reduction were more likely to be recidivists than 14-year-olds who had not previously been charged when under the age of criminal responsibility and were less likely to be in continuing education (Damm et al. 2017). The MACR was returned to 15 two years after the change, while a reduction continued to be debated for the following years.

The inability to lower the MACR was somewhat circumnavigated by the introduction of the Law on Defeating Youth Crime. This law, effective from January 2019, applying to children aged 10–17, introduced Youth Crime Boards (YCB) and a Youth Probation Service (YPS) as key institutions for combating youth crime. Children aged 10–14 are referred to a YCB if suspected of a violent offence, whereas children aged 15–17 are referred after receiving a court sentence. The YCBs order so-called improvement programmes, which are mandatory and have a fixed duration of 1 or 2 years; these include interventions and supervision by the YPS. The system has been criticised for sidestepping legal guarantees and introducing court-like proceedings and punishment particularly for children under the MACR (Laursen et al. 2022; Henriksen et al. 2024).

3.4 | Finland

The minimum age of criminal responsibility in Finland is 15 years, and has been since 1889 (FinLex Data Bank 2023—Finland Penal Code), although children under this age may be liable to civil actions for compensation. Those who are dangerously antisocial or violent when under 15 are provided with child welfare interventions. Although considered to have the capacity for criminal responsibility after this, the young person aged 15–18 may have their punishment waived if the act is 'deemed to be the result of his thoughtlessness or imprudence rather than his being heedless of the prohibitions and commands of law' (Finland Penal Code 1889). Age is generally regarded as a factor in sentencing for this group, although, interestingly, victim-offender mediation is an option for lesser crimes (Elonheimo 2017).

Since about 2000, there have been several citizen initiatives, political drivers and occasional expert opinions suggesting that the age of criminal responsibility be lowered at least to 14 years of age (including through Finland's Interior Minister) (Rantanen 2023), but these initiatives have not progressed. Recently, these discussions have arisen in relation to concerns about street violence and gang activity.

3.5 | France

Theoretically, there is no minimum age of criminal responsibility in France. Article 122–8 of the French Penal Code (1810) considers minority as a potential cause of 'non-imputability' and lays down the condition of 'discernment' as a criterion. Here, discernment is defined as a person's ability to understand their offence and assume its consequences. This capacity is construed as gradually increasing with age until reaching 18, at which time it is deemed to be fully established (Bonfils and Gouttenoire 2014). Although the French Government has not ruled categorially, there is a presumption in most cases that under the age of 13 there is no capacity for discernment and that, thereafter, it should always be considered before proceeding until the young person reaches majority. Rates of crime reduce markedly the younger the child is (France's Ministry of Justice 2023), though there may be multiple reasons for this trend.

A juvenile court and the Assize Court for minors may, when the circumstances and the personality of the young suspect appear to require it, pronounce a criminal conviction (Ordinance 45, 1945). Age is allowed for in these circumstances through sentencing, usually to one of 52 closed educational centres (Senat Report 2018). Although formal efforts to make a case for raising the age are not common, the Code of Juvenile Criminal Justice (CJPM 2021) solidified the presumption of lack of discernment for those under 13.

3.6 | India

In India the minimum age of criminal responsibility is 7 years, after which it is assumed that it is at least possible that children have attained 'sufficient maturity of understanding to judge the nature and consequences of (their) conduct on that occasion'. This has been true since 1860, although the Indian Penal Code does provide for a *doli incapax* analogue which protects children up to the age of 12 (Indian Penal Code 1860).

Public sympathy for raising the MACR have been hampered a high-profile case (Mukesh and Anr vs. State For Nct Of Delhi and Ors 2017): in 2012, 6 offenders were involved in a serious crime, one of whom was a 17 year old. A number of protests followed demanding stricter punishments for children in general.

3.7 | Ireland

The minimum age of criminal responsibility in Ireland is 10 years, as set down in the Children Act (Ireland) 2001,

although children aged 10 or 11 can only be tried for serious offences (murder, rape, manslaughter and aggravated sexual assault). When the Children Act 2001 came into force in October 2006, it raised the MACR from 7 to 10 years in Ireland. A further concession is that, for more serious offences which would be usually heard by the Central Criminal Court, no child under 14, regardless of criminal responsibility, may be sent forward for sentencing without the consent of the Director of Public Prosecutions or the Attorney General (Criminal Justice Act, 2006). It is suggested that efforts to increase the MACR have been hampered by a combination of religious values and interests, economic and social constraints, the public intolerance of childhood offending, a lack of political will and the relative neglect of scientific research (Walsh 2016).

3.8 | The Netherlands

In 1965 the minimum age of criminal responsibility in The Netherlands was set at 12 years, where it has remained ever since. Prior to 1965, there was no MACR. Subsequent concessions to age, as in the 'Act on Adolescent Criminal Law 2014' (Wet Adolescentenstrafrecht 2014) have followed from increasing understanding of brain development. Under this law, young people of 16–23 may be judged through the juvenile or adult justice systems, although the number of 16–18-year-olds entering the adult system is very small (Laan et al. 2021).

There has been much discussion about raising the MACR, culminating in advice from the Council for the Administration of Criminal Justice and Protection of Juveniles (an independent advisory board) in 2017 to raise the minimum age of criminal responsibility to 14 years (Raad voor Strafrechtstoepassing en Jeugdbescherming 2017). To date, this has not led to a change in the law; indeed the Minister of Justice responded 'I want to keep the possibility to apply penal law for serious offences and therefore shall not raise the age'.

3.9 | New Zealand

New Zealand's MACR was raised to 10 years of age in 1961 (New Zealand Crimes Act 1961), with a *doli incapax* protection for 10–14 year-olds, having been set at seven during the eighteenth century (with *doli incapax* for 7–14 year-olds (Criminal Code Act 1893). Currently, the only circumstances in which a 10–11-year-old would find themselves in criminal court would be on murder or manslaughter charges, whereas 12–13-year-olds would only appear in the case of murder, manslaughter or offences carrying a maximum penalty of 14 years or life imprisonment; a rare exception is allowed for an offence carrying a maximum penalty of 10 years' imprisonment if that young person also had a prior conviction for murder, manslaughter or a maximum 14 years' imprisonment offence (Children Act 1989). New Zealand was also the originator of family group conferences which provide diversionary measures for young people (up to 18) involved in offending behaviour.

Various efforts have been made to raise the MACR in New Zealand, supported in 2022 by Amnesty International's

New Zealand office, the Children's Rights Alliance, the New Zealand branch of the Howard League, the New Zealand Office of the Children's Commissioner and the Royal Australian and New Zealand College of Psychiatrists, but these efforts may be failing with politicians in light of media coverage of young ram raiders (groups of young children stealing cars and driving them into store fronts to steal high-value items) which is reducing public sympathy for children who offend (New Zealand Herald 2022). New Zealand's government is due to report back to the United Nations Human Rights Council in relation to the minimum age, as part of the Universal Periodic Review in 2023/24.

3.10 | Portugal

The MACR in Portugal is 16, and has been since 1911 when the first Portuguese legislation concerning minors was published (Childhood Protection Law 1911). A new youth justice law (Educational Guardianship Law 1999) came into force in 2001, underlining the need for educational supportive measures for young people aged 12–16. Once 17, full adult justice procedures apply, although perhaps with some age mitigation (Gersão 2019). A proposal to reduce the minimum age of criminal responsibility to 14 followed in 2006, but was rejected by most political parties. In 2021, the goal of raising the age to 18 was included in the National Strategy for the Rights of the Child (2021–2024) which furthers the implementation of the UNCRC (Resolution of the Council of Ministers 112/2020).

Although the Portuguese MACR is 16, under-12s are treated differently from 12 to 16-year-olds. Under 12, a child can only be subject to child protection measures promoted by the Family and Child Courts or by the local Commissions for the Protection of Children and Young People (1999), but aged 12–16 they may be subject to the 'Educational Guardianship Law' (Gomes et al. 2018). Minor offending may lead to a form of warning or reparational activities.

3.11 | Sweden

In keeping with the nuanced strategy for children compared with adults (Nordlöf 2012), Sweden has set their MACR at 15 years. In some areas the age of 15 has been stipulated since the 13th century, but it was not in national law until 1864 (Swedish Penal Code 1864); children who committed serious crimes after the age of 14 were included until 1902 when a MACR of 15 applied for all offences (Swedish Criminal Code, 1902). In 1965, however, the MACR was wholly removed while ensuring that under-15s could not be given solely criminal sanctions (Swedish Criminal Code 1962).

In July 2023, following public concern about criminal gangs, the Swedish government initiated an investigation with regard to reducing the age of criminal responsibility, as well as diminishing the significance of age in the determination of sentencing (Committee Directive 2023).

3.12 | United Kingdom (UK)

The central UK government has now devolved many aspects of legislation to its constituent countries. In respect of the MACR England and Wales share legislation, but Scotland and Northern Ireland have their own.

3.12.1 | England and Wales

The MACR for England and Wales remains at 10 years, having been raised from eight years in 1963 (Children and Young Persons Act 1933). *Doli incapax* was effectively abolished by the 1998 Crime and Disorder Act. The UN Committee has recommended an increase in the minimum age of criminal responsibility in each of its concluding observations on UK compliance in 1995, 2002, 2008 and 2016 (McAlister et al. 2017). Despite this, and numerous and frequent evidenced recommendations by health experts and criminologists to raise it at a minimum to 12 years, there has been insufficient public support for any government to put this to the UK Parliament. Public opinion has been powerfully shaped in England by two cases of child murder by 10-year-old children (see the Mary Bell trial in 1968 and the Robert Thompson and John Venables trial in 1993—the latter case continues to attract inflammatory media coverage).

In the absence of government action, there have been several attempts to progress the issue by Private Members' Bill, whereby a Member of either House of Parliament enters a ballot for a Bill to be put before Parliament. The most recent got a first reading in the House of Lords in 2022 (bills.parliament.uk/bills/2891), but did not progress beyond a first reading. An inquiry into children in the Youth Justice System in 2020 recommended the Ministry of Justice review the MACR, including the likely effect on demand for services in any sector when the facts of a case of serious harm by a child are established but capacity is absent on age grounds; this has not happened at the time of writing.

3.12.2 | Northern Ireland

The MACR in Northern Ireland is 10 years of age. A 2011 Youth Justice Review recommended that it be raised initially to 12 years, with further review explicitly to include consideration of raising it to 14 years. The Justice Minister made a commitment in 2012 to progress the issue, without success (Carr and McAlister 2021). A public consultation on the MACR was launched on 3rd October 2022. The Department of Justice announced on 2nd June 2023 that the consultation indicated there was 'strong support' for raising the MACR. Various strong co-ordinated activities (P. Anderson 2022; McAlister et al. 2017) and the 'Raise the Age Campaign' from 2021 to 2022 just preceded the 2022–2024 suspension of Stormont parliamentary activities, although so far no changes have been forthcoming.

3.12.3 | Scotland

The MACR in Scotland is 12 years (Age of Criminal responsibility (Scotland) Act 2019). The first statutory definition of

criminal responsibility was in 1937 (Children and Young Persons (Scotland) Act 1937), when the minimum age was set at eight years. Before then, those under 21 had been provided with protection under common law.

Although during the past 50 years most child offending had been dealt by Children's Hearings under civil procedures, campaigning resulted in the age of prosecution being raised from eight to 12 years in 2011; the MACR was then aligned. The 2019 Act was intended to protect children from harmful effects of early criminalisation. Multi-agency working groups were established to examine the effects of the change to 12 years and consider lessons learned from international comparisons. After our period of analysis, the Age of Criminal Responsibility Advisory Group published a report calling for further raises in the MACR in line with other countries (ACR Advisory Group 2024).

4 | Discussion

This research study, although limited to a specific time period, has endeavoured to map the MACR and its history across a range of countries internationally in an effort to understand either efforts to change the MACR or reasons why change has not happened. Historical influences, including specific cases that have affected the public zeitgeist, and politicians' desires to appeal to voters' interests appear to oppose raising the MACR; they have sometimes been cited as reasons for lowering it. A more scientific understanding of real limits of mental capacities coupled with a welfare-based approach towards children have been the main drivers towards raising the age. The MACR may be absolute (e.g., England and Wales) or relative, being subject to stratification by seriousness of offence (e.g., Ireland), through *doli incapax* (e.g., Australia) or both (e.g., New Zealand). In no country is there any bar to evidencing incapacity in each individual case, although that would be costly and depend heavily on the quality of lawyers and expert witnesses. History is also a factor—many countries have retained the penal code inherited through colonisation. In this respect, the UK has influenced several countries around the world (e.g., Australia, New Zealand and India), as have other European countries.

Criticisms of the relative, rather than the absolute stance relate to the archaic and poorly tested nature of *doli incapax* and the paradoxes inherent in stratification by seriousness of offence (about which the UN has been critical (UN General Comment Number 24, 2019)). The management of children and young people exhibiting antisocial behaviour necessitates a decision about welfare versus criminal justice approaches, which of course has resource implications. Nevertheless, the United Nations Committee is endeavouring to use a scientifically informed and evidence-based approach towards setting an international minimum age at 14, whilst recognising that some countries set their age above 14 and advising them not to lower it (UN General Comment Number 24, 2019). Nevertheless, 14 is currently the most common MACR across the globe and there is a trend towards increasing the MACR in most countries where it is under 14.

4.1 | Child Development

Contextual evidence from the scientific community has important implications for informing practice. Adolescence represents a phase of rapid brain development characterised by increased impulsivity and sensation-seeking (van Leijenhorst et al. 2010; Steinberg 2007), a gradually developing ability to empathise (Strayer 1993) and heightened vulnerability to peer influence (Steinberg and Monahan 2007; C. Sebastian et al. 2010). The frontal lobes of the brain—responsible for planning, decision-making and inhibiting impulsivity—develop much later than the limbic system—the part of the brain responsible for emotional and behavioural responses (Gogtay et al. 2004). This imbalance in the stages of development between the frontal lobes and the limbic system is thought to account for increased arousal and risk-taking behaviour in adolescence (Royal Society 2011), without necessarily involving self-awareness of this.

Through the course of adolescence, it is evident from multiple studies that young people develop an increasing ability to exert control over their thoughts and actions as they mature (Asato et al. 2006; Case 1992; Huizinga et al. 2006; Zelazo et al. 2004). Physical brain development continues at a rapid rate into the early twenties (V. A. Anderson et al. 2001; Sowell et al. 2001). Adolescents tend to be less future-orientated with their decisions (Greene 1986; Nurmi 1991) and, compared to adults, tend to give more weight to gains than losses (Benthin et al. 1993; Furby and Beyth-Marom 1992). Adolescents also demonstrate higher risk-taking behaviour when with peers compared to adults and younger children (Steinberg 2011) and when in states of high emotion (Figner et al. 2009).

There is evidence to indicate that this effect may be linked with environmental influences and hormonal changes (Crone and Dahl 2012; Blakemore et al. 2010; Bramen et al. 2012). Young people's social cognitions (their self-awareness and abilities to see the perspectives of others) are evolving into their mid-twenties (Choudhury et al. 2006), and, through teenage years, rejection-related distress is greater than that experienced by adults (Masten et al. 2009). Adolescents have long been known to seek peer acceptance to a greater extent than adults or younger children (Newcomb et al. 1993).

The aforementioned studies relate to brain development in the average child—but what of the child at risk of offending? Children in contact with the justice system may be at a biological disadvantage as many have sustained one or more forms of brain trauma—whether through accident or abuse, malnutrition or exposure to alcohol and other drugs *in utero* (Sarkar et al. 2013, 2016; C. L. Sebastian et al. 2016). Further, the social environment in which they are developing affects their social learning.

Given that most young people in the youth justice system have experienced multiple adversities, they may be especially vulnerable to poor decision-making and impulsive judgements. It is thus all the more important that society's responses are informed by developmental realities rather than arbitrary legal cut-offs. Not doing so could risk further harms for society as well as for the young person. The Danish evidence indicated that when MACR was dropped just one year from age 15 to age 14, affected children were less likely to stay in appropriate

education and more likely to re-offend is important to be mindful of in this context (Damm et al. 2017).

Any decision to prosecute a child must also factor in the impact of labelling—children passing through adolescence are in a stage of identity acquisition in which they learn about what they are good at, and to which social group they belong, as a means of working out who they are. Even low-intensity impact with the justice system can signal to the child that offending, and being a 'young offender' is part of their identity and thus can increase the risk of recidivism (Farrington et al. 1978; Krohn et al. 2014; McAra and McVie 2007; Murray et al. 2014; Petrosino et al. 2010; Cauffman et al. 2021) with accompanying low self-esteem, itself linked with antisocial behaviour (Donnellan et al. 2005). Imprisonment increases this risk (Aizer and Doyle 2015; Bales and Piquero 2012).

4.2 | Justice Policy-Setting

In response to questions about why their MACR is so low, politicians will often state that it is not the age but the child's management, which is frequently of a welfare-based or education-based nature, which is the most important factor. However, labelling children as criminals, as a result of low MACR, may in itself be antithetical to rehabilitation and recovery and increase risks of recidivism (Damm et al. 2017)—and the setting of a low MACR should also be considered in terms of its demonstrable impact on wider society as well as the child. As noted, there is a Danish research study which suggests an increase in re-offending when the MACR is lowered; future research has begun on the impact of raising it. Further longitudinal work in this area is needed, and although this research was limited to a focus on 14 countries, changes are of course happening elsewhere—again further research is needed to fully understand the international picture.

The minimum age of criminal responsibility is only one piece of the youth justice puzzle, but it is a big one. Seriously harmful behaviour from children can be adequately managed solely by welfare, health and education interventions—as is already the case for all those accepted as under the minimum age of criminal responsibility—and countries where the MACR is high have often developed particularly helpful, innovative and collaborative relationships between these agencies—in the interests of all. Conversely, in countries with a low MACR where child care professionals do not want to criminalise a child, there may be an avoidance of acknowledging or appropriately responding to antisocial or risk behaviour.

Children who enter the criminal justice system are some of the most expensive prospects for society (Scott et al. 2001). Given what is known about early investment (Garcia et al. 2016), together with labelling theory research, the evidence suggests that raising the minimum age while investing in specialist welfare, health and education services makes long-term financial sense—fewer offenders means more taxpayers, less of a financial burden in running prisons, fewer youth justice institutions and arguably less of an eventual burden on adult welfare, health and nongovernmental services.

Targeted campaigns to educate the public, policymakers and politicians are likely to be the cornerstones of successful campaigns to raise the MACR, as seen in Australia and Scotland. Following the cessation of data collection for this research study, there have been further changes—for example, Australia's Northern Territory has, following an initial raise to 12, now lowered its age back to 10 (Northern Territory Government Publications). Change is possible in many forms and we have a role in presenting the scientific research in a manner which is digestible for the voting public.

It is also important to be ready to respond when offending by young people catches headlines and frightens communities. Several countries have noted that there are calls to increase the MACR when this happens and the scientific community must be able to advise coherently. This research consortium intends to continue to examine the topic of criminal responsibility in children—more research is of course needed—and of particular interest are studies examining the impact of MACR changes when they do occur. We must take account of contextual studies of development in order to understand how age may affect capacity for responsibility for actions, but, ultimately, it is the impact of varying the minimum age that is likely to have the greatest influence. Clinicians and academics have an ongoing duty to ensure that lawmakers have the requisite evidence in front of them, although they need the resources to do such work. Without it we are doomed to repeat harmful cycles of trauma, unhelpful labelling and a fractured sense of citizenship, and to bear the costs of so doing.

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Data Availability Statement

All data is available on request from the authors.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.

Table S1: Minimum Age of Criminal Responsibility Internationally, 31st December 2023.

Appendix A: GIRAF Participating Countries

Argentina.

Australia.

Denmark.

Finland.

France.

India.

Ireland.

The Netherlands.

New Zealand.

Portugal.

Sweden.

UK (England and Wales).

UK (Northern Ireland).

UK (Scotland).