Ramping Up Detention of Young Serious Offenders: A Safer Future?

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Abstract

When youth commit serious violent or sexual offenses, this often generates a call for more severe punishments and longer detention sentences. An important question is whether (long) detention sentences are effective in decreasing recidivism among serious young offenders. To estimate recidivism rates in serious young offenders and elucidate the link between sentencing (in terms of custodial vs. non-custodial and length of imprisonment) and recidivism, three multilevel meta-analyses were conducted. With a systematic literature search, 27 studies and four datasets were traced, involving $N = 2,308$ participants, yielding 90 effect sizes for overall recidivism, 24 for specifically violent recidivism, and 23 for the association between length of imprisonment and recidivism. The average weighted overall recidivism rate was 44.47% (95% confidence interval [CI]: 37.59–51.46%) over an average period of 8.68 years. The rate of violent recidivism was estimated at 30.49% (95% CI: 20.92–40.52%), over an average period of 11.45 years. Recidivism rates were higher when recidivism was defined as an arrest for any new offense rather than for a specific offense and in studies conducted in the United States versus European studies. Violent recidivism rates were higher in studies with longer follow-up periods. Based on the limited available studies, no difference in recidivism rates following custodial and non-custodial sentences were found, nor an association between length of imprisonment and recidivism. To increase rehabilitation chances for youth offenders, further research is warranted to better understand the impact of sentencing and to ascertain what is needed to make custodial and non-custodial sentences more effective.

Keywords

violent offenders, youth violence, recidivism, sentence, meta-analysis

Introduction

When juveniles or young adults commit violent and/or sexual offenses that involve a high degree of harm and wrong against the victim, such as violence resulting in serious bodily injury or death, (attempted) manslaughter or murder, and rape, this often generates public outcry and concern for public safety, accompanied by a call for more severe punishments and longer detention sentences.

Yet, particularly in cases where youth (rather than adults) are tried, justice systems must balance the competing purposes of sentencing, with restitution and retribution for the victims and/or their families, punishment for the committed crime, and preservation of public safety on one hand, and rehabilitation and reintegration of the youth offender on the other (e.g., Cauffman et al., 2007; Loughran et al., 2009). All the more, for children under the age of 18 in the justice system, general comment No. 24 of the Convention of the Rights of the Child states that in deciding about how to respond to an offense "weight should be given to the child's

best interests as a primary consideration as well as to the need to promote the child's reintegration into society" (United Nations Committee on the Rights of the Child, 2019, p. 8). While more weight on rehabilitation and reintegration may contribute to a reduction in recidivism and thereby a safer society (Pappas & Dent, 2021), the public outcry often does not account for these purposes. An important question is therefore whether (long) detention sentences are effective in decreasing recidivism among youth who commit serious violent or sexual offenses. This meta-analytic review aimed

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to answer this question by establishing the status quo of research in this area.

Reintegration into society is no mean feat for youth offenders, of which some committed serious violent or sexual offenses. In addition to mental health issues such as conduct disorders, dependence on addictive substances and depression that are prevalent among youth offenders, especially incarcerated youth, criminal recidivism is common (Gretton and Clift, 2011; Lambie and Randell, 2013; Weijters et al., 2019). For instance, research in the Netherlands showed that almost 80% of youth sentenced to placement in a youth treatment facility, the most severe punishment for youth in the Netherlands, had recidivated after a period of 5 years, of which half committed a violent offense (Mulder et al., 2011). Research from the United States indicated that 50% of youth homicide offenders had recidivated with a felony offense after a follow-up period of 10 years (Caudill & Trulson, 2011).

For several reasons, primary research has provided limited knowledge on the association between imposed sentences and outcomes of serious young offenders. First, available research often does not distinguish between groups of offenders, whereas results may vary significantly across offender groups. The effect of sentences on youth who are convicted for severe violent or sex offenses in particular has been scarcely researched, possibly as a result of the low prevalence of such offenses. Second, diversity in operational definitions of recidivism across countries and studies and differences in follow-up length complicate the comparability of results (Fazel & Wolf, 2015; Van Ham & Ferwerda, 2018; Yukhnenko, et al., 2020).

Available research linking sentences to outcomes mostly focused on the impact of incarceration. Findings from several studies align with the suggestion of Nagin et al. (2009) that incarceration may have a null or even mildly criminogenic effect on future criminal behavior. For instance, based on a systematic review and meta-analysis, Black (2016) concluded that incarceration is associated with an increased risk of recidivism among youth offenders. Likewise, Aizer and Doyle (2019) found that incarcerating minors increased recidivism rates, and Petrich et al. (2020) found in their meta-analysis that being sentenced to a custodial sanction as opposed to a non-custodial alternative has a weak but statistically significant criminogenic effect, irrespective of the offender's age. Findings may deviate for youth convicted for the most serious offenses, with Caudill and Trulson (2016) finding that incarceration can lead to lower recidivism in youth convicted for homicide offenses.

In addition to the impact of incarceration on recidivism among youth convicted for the most serious offenses, it remains unclear whether and how length of imprisonment is associated with criminal recidivism. Although a previous study among incarcerated homicide offenders, including youth offenders, suggested that a longer period of imprisonment was associated with a higher rate of recidivism (Baay et al., 2012), the link between length of incarceration and recidivism has rarely been reported, and even less among youth convicted for the most serious offenses.

To appropriately respond to the call for more severe punishments and longer detention sentences, it is crucial to clarify the effect sentences have on recidivism among youth offenders, in particular on those convicted for the most serious offenses who often face (lengthy) confinement. As previous research mostly reports results of broad offender groups without specifying results for the most severe group, probably due to small numbers, the current study aimed to overcome this problem by tracing and combining results for this specific subgroup. To elucidate the link between sentencing and recidivism in this group of offenders, a systematic literature search was conducted to identify all studies reporting on recidivism in youth offenders convicted for serious violent or sex offenses, to subsequently conduct meta-analyses of these primary results. We focused on youth who were aged up to 23 years at the time of the offense, based on the evidence that brain maturation and cognitive development continue well through adolescence (Steinberg, 2005) and that, in various countries, young adults are or can be sentenced according to youth criminal law. The aims of the current literature study were to examine (1) recidivism rates of youth convicted for the most serious offenses, that is, (attempted) murder, manslaughter, rape, violence causing severe bodily harm, or death, (2) differences in recidivism following custodial and non-custodial sentences, and (3) the association between length of imprisonment and recidivism.

Method

This study was part of a multidisciplinary research project into the sentencing of youth offenders who committed serious violent or sexual offences, issued by the Dutch Ministry of Justice and Security (Asscher et al., 2020). Study aims and methods were established a priori and described in a study proposal that provided the blueprint for this study. During the study, a supervisory committee installed by the Dutch Ministry of Justice monitored the rigor with which the study was conducted.

Study Selection

A systematic literature search was conducted up to January 2022. Three scientific databases were searched for relevant literature: PsycINFO, SocINDEX, and Web of Science. To identify studies examining criminal recidivism of youth convicted for serious violent or sex offenses committed before the age of 23, the search terms "sex offenses," "rape," "violent crime," "violent criminals," "extreme violence," "homicide," "infanticide," "neonaticide," "filicide," "murder," "manslaughter," "aggravated assault," "assault & battery," and "criminal offender" were combined with the search terms "recidivism," "re-imprisonment," "reincarceration,"

reconviction," "rearrest," "reoffend," "repeat offending," and "criminal rehabilitation," and the search terms "adolescence," "juvenile delinquency," "juvenile," "youth," "young adult," "teen," "minor," "underage," and "child," without restrictions on year of publication or language. The search resulted in 3,280 hits, of which 2,577 unique hits remained after duplicates were removed. These results were imported in the application Rayyan (Ouzzani et al., 2016).

In the first screening based on titles and abstracts, study eligibility was determined using the following inclusion criteria: (1) study sampled participants who were convicted for one of the following severe violent or sexual offenses: murder, attempted murder, manslaughter, rape, or assault leading to severe bodily harm or death; illegal acts that involve a gross violation of bodily integrity and that are considered of a shocking nature according to the law; (2) the participants were juveniles or young adults (up to 23 years old) at the time of the index offense, and (3) studies had to report recidivism rates, based on self-reported recidivism or official records. This first screening was performed by the second author, after dual assessment of the first 100 hits (by first and second authors), and resulted in the exclusion of 1,723 studies. The remaining 854 studies were subjected to a second screening based on full text, also conducted by the second author. In this second screening, the following exclusion criteria were added: (1) no mention of youth offenders convicted for severe violent or sexual offenses in the sample; these studies rather focused on broad definitions of crime (such as "violent offenses" or "sex offenses"); and (2) study sampled mostly offenders who were adults at the time of the index offense. We considered this to be the case when a sample's average age at the time of the index offense minus two standard deviations (SDs) exceeded age 22. The second screening resulted in the exclusion of 660 studies, of which 169 were inaccessible. The latter concerned older studies, publicly unavailable dissertations, government reports, and conference contributions. Other studies were most often excluded because they lacked information about offenses for which participants were convicted or because the offender's age at the time of the index offense was missing, making it impossible to determine whether or not the study sample comprised subjects that were eligible for inclusion in the current review. The second screening resulted in the inclusion of 16 studies. The remaining 178 studies were tentatively included, as the full texts implied that the studies contained relevant data for this review. Mostly, these studies included a broader group of youth offenders, of which some were convicted for serious violent or sex offenses. The authors of these studies were contacted by email and asked to provide results and corresponding information for the specific subgroups that were relevant for this review. Responses to these requests led to the inclusion of another 12 studies and four datasets. Ambiguities throughout the (first and second) screening were resolved in consensus meetings with the first, second, and last authors.

From the total of 28 studies and four datasets, one study was excluded (Khachatryan et al., 2018) because the results were similar to the results reported in another study (Khachatryan et al., 2016b), leading to a final sample of 27 studies and four datasets. The included studies and datasets described information on 27 unique samples of youth offenders. Results of the literature search and screening process are illustrated in Figure 1.

Coding

A variety of sample and study characteristics were extracted from the included studies. After independent coding of two studies (by first and second authors), resulting in perfect agreement, the second author coded the remainder of the studies. Again, ambiguities were resolved in consensus meetings with the first, second, and last authors until full consensus was reached on all final codings.

Extracted sample characteristics were mean age, percentage of males, percentage of participants from minority groups, type of index offense (categorized as [attempted] murder and manslaughter, rape, and severe violence, the latter including combined severe violent and sexual offenses other than rape), and whether offenders were imposed a custodial or non-custodial sentence. Due to lack of reported information in primary studies, the sample characteristics treatment setting, treatment format, evidence-based treatment, and type of trainer/therapist were not further considered.

Study characteristics included country in which the study was carried out (the United States, European countries, and other), sample size, length of follow-up period, and definition of recidivism (arrested for any new offense, arrested for a specific new offense, convicted for any new offense, convicted for a sex offense, and other). In addition, year of publication and impact factor of the journal, as a proxy for the relative importance of the journal in which the study was published, were coded.

Finally, study outcomes were coded. First, overall recidivism rates were coded, in addition to—if reported—violent recidivism rates. Second, the correlation (r) between length of imprisonment and recidivism was coded. Whenever effect sizes could not be directly obtained from the study, they were calculated using reported proportions or percentages and formulas of Lipsey and Wilson (2001).

Analyses

Three separate meta-analyses were performed in pursuing the research aims; one on overall recidivism rates, one on violent recidivism rates, and one on the association between length of imprisonment and recidivism. Because proportions are not normally distributed, overall and violent recidivism rates were transformed into t-values using the guidelines from Barendregt et al. (2013), with the formula:

Figure 1. Flow chart of the literature search and screening process.

$t = \sin^{-1}\sqrt{(n / N + 1)} + \sin^{-1}\sqrt{((n+1) / (N = 1))}$, where n refers to the number of persons in a category (in this case, the number of recidivists in the sample) and N refers to the total sample size. For ease of interpretability, these t-values were transformed back into proportions after the analyses were performed using the formula: $p = (\sin(t / 2))^2$ (Barendregt

et al., 2013, pp. 975). For the association between length of imprisonment and recidivism, point-biserial correlations or Spearman's rho correlations were either directly extracted from the articles, calculated based on reported raw data, or requested from the author(s). Since correlations are not normally distributed, Lipsey and Wilson's (2001) guidelines were used to convert these correlations into Fisher's z-values.

Several included studies reported multiple effect sizes that were eligible for inclusion. To avoid loss of information, all relevant effect sizes were extracted from included studies. As a result, the effect size dependency that arose from retrieving multiple effect sizes from individual studies had to be modeled. This was done by applying a three-level approach to meta-analysis (Assink & Wibbelink, 2016; Van den Noortgate et al., 2013). Specifically, a three-level random effects model was used for calculating overall effects and for performing moderator analyses. First, overall effects were estimated in three separate models without moderators (i.e., intercept-only models) for overall recidivism, violent recidivism, and the association between length of imprisonment and recidivism. To investigate the robustness of the overall effects, sensitivity analyses were conducted. The overall effects of the three meta-analyses were recalculated with each time removing a different study, to examine the influence of the individual studies on the results (Viechtbauer & Cheung, 2010). Trim-and-fill analyses were conducted to assess whether the results were affected by publication bias (Duval & Tweedie, 2000).

Subsequently, log-likelihood ratio tests were carried out to evaluate the heterogeneity in the effect sizes. If substantial heterogeneity was detected, the three-level intercept-only models were extended by including (potential) moderators as covariates so that moderating effects could be examined. To this end, continuous moderators were centered around their means whereas for categorical moderators, dichotomous dummy variables were created. Omnibus tests were performed to determine the significance of included moderators (Houben et al., 2015; Assink & Wibbelink, 2016). Finally, to examine the unique impact of each moderator, multiple moderator models were tested, including all moderators that came out as significant in the bivariate models. All meta-analyses were performed using the metafor package (Viechtbauer, 2010) in the statistical program R (R Core Team, 2020).

Results

Across the three meta-analyses, a total of $K=27$ manuscripts published between 1986 and 2020 as well as four datasets were included, resulting in primary data from 27 independent samples and $N=2,308$ participants. (Sub) Sample sizes varied between $N=1$ and $N=355$. Most studies were conducted in the United States (45.2%) or in European countries (41.9%). Other studies were conducted in Australia, Canada,

and China. Table 1 presents some characteristics of the included studies and Table 2 presents the recidivism rates per study. The meta-analyses on overall recidivism, violent recidivism, and length of imprisonment synthesized 29 studies (90 effect sizes), 14 studies (24 effect sizes), and 9 studies (23 effect sizes), respectively.

Overall and Violent Recidivism

The average effect size (t) for overall recidivism of youth offenders who committed severe violent or sex offenses was 1.46, $t(89)=20.97$, $p<.001$, corresponding to a recidivism rate of 44.47% (95% confidence interval [CI]: 37.59–51.46%) over an average period of 104.17 months (SD=95.86 months), based on $k=25$ manuscripts and four datasets. The average effect size (t) for violent recidivism was 1.17, $t(23)=11.05$, $p<.001$, which corresponds to an average violent recidivism rate of 30.49% (95% CI: 20.92–40.52%) over an average period of 137.43 months (SD=140.80 months), based on $k=14$ manuscripts and three datasets. To assess each study's contribution to these results, analyses were rerun, each time removing a different study (Viechtbauer & Cheung, 2010). Findings from these sensitivity analyses (Table 3) indicated that the significance of the average effect sizes remained unchanged after each rerun. This indicates that none of the individual primary studies substantially affected the estimated average overall and violent recidivism rates.

The trim-and-fill analysis for overall recidivism revealed an asymmetrical distribution of effect sizes with 13 "missing" effect sizes at the left of the estimated mean effect in the funnel plot (Figure 2), indicating that relatively low recidivism rates were underrepresented in the current meta-analysis. As the estimated overall recidivism rate in the present meta-analysis might be an overestimation of the true recidivism rate, a "corrected" overall effect size was estimated. The adjusted overall effect size (t) was 1.38, $t(102)=23.89$, $p<.001$, corresponding to an overall recidivism rate of 40.52% (95% CI: 35.19–46.46%). This "corrected" effect is only slightly lower than the initially estimated effect ($\Delta t=0.08$ corresponding to a 3.95% difference), indicating that publication bias affected the results only to a limited extent. For violent recidivism, no effect sizes were missing according to the trim-and-fill analysis (Figure 3), suggesting the results were not affected by publication bias.

The log-likelihood ratio tests indicated that, for overall recidivism, significant variance was present at level 2 of the three-level model (variance within studies), $\chi^2(1)=530.23$, $p<.001$, and level 3 of the model (variance between studies), $\chi^2(1)=3.32$, $p<.05$, indicating substantial heterogeneity in recidivism rates. The log-likelihood ratio tests for violent recidivism revealed significant variance at level 3, $\chi^2(1)=10.41$, $p<.001$, but not level 2, $\chi^2(1)=0.01$, $p<.468$. Given the substantial heterogeneity in the effect sizes, moderator analyses were conducted to investigate whether and

Table 1. Characteristics of Included Studies, A–K.

Article	Year	Country	Type of document	Average age	Age range	% Male	% Minority status	Offense	% Detention	% Treatment
Baudin et al.	2020	Sweden	Article	20.60	17.70–22	100	0	Murder/manslaughter, serious assault, rape	66.67	25
Borduin et al.	1990	US	Article	—	—	100	—	Rape	—	100
Busch et al.	2009	US	Article	14.20	11–17	88.79	—	Rape	—	—
Caudill & Trulson	2016	US	Article	15.60	—	—	81	Murder/manslaughter	100	—
De Vogel et al.	2004	Netherlands	Article	19.73	17–22	100	—	Rape	100	100
Edwards et al.	2005	UK/Wales	Article	14.61	12.33–16.08	100	4.54	Rape	—	100
Grieger		Germany	Dataset	19.54	14.85–24.38[a]	100	9	Serious assault	100	—
Grieger		Germany	Dataset	18.80	14.61–26.34[a]	100	7	Murder/manslaughter	100	—
Hagan & Gust-Brey.	1999	US	Article	—	12–19	100	—	Rape	100	100
Hagan et al.	2001	US	Article	—	12–19	100	—	Rape	100	100
Heide	2019	US	Article	—	7–17[b]	100	63	Murder/manslaughter	100	—
Heide et al.	2001	US	Article	—	7–17[b]	100	63	Murder/manslaughter	100	—
Hill et al.	2012	Germany	Article	19.51	15.50–22.83	100	—	Murder/manslaughter	100	—
Hoogsteder et al.	2018	Netherlands	Article	17.45	15–21	100	100	Murder/manslaughter	100	100
Khachatryan et al.	2016a	US	Article	16	14–18	100	66.67	Murder/manslaughter	100	—
Khachatryan et al.	2016b	US	Article	15.97	14–18	100	64.61	Murder/manslaughter	100	—
Khachatryan et al.	2016c	US	Article	15.88/16	14–18	100	43.75/72.09	Murder/manslaughter	100	—
Krause et al.	2020	Switzerland	Article	14.68	12.08–18	100	32.20	Rape	—	—

[a]The average age at the time of the offense was unavailable. The average age and age range for this sample refer to age at the time of admission to the detention center. NB.: In Germany, youth can only be sentenced to a juvenile measure if they were at most 21 years old at the time of the offense.
[b]Age at the time of first arrest, age at the time of the index offense was not reported.

Table 1. (continued). Characteristics of Included Studies, L–Z.

Article	Year	Country	Type of document	Average age	Age range	% Male	% Minority status	Offense	% Detention	% Treatment
McCarthy	1989	US	Article	—	<16	—	—	Murder/manslaughter/serious assault	0–100	—
McCuish et al.	2016	Canada	Article	17.14[a] 16.05[b]	13–19	100[a] 68.40[b]	57.10[a] 52.60[b]	Murder/manslaughter	100	—
McCuish et al.	2018	Canada	Article	14.73	12–17	76.92	53.85	Murder/manslaughter	100	—
Myers et al.	2010	US	Article	15.40	13–17	—	40.91	Murder/manslaughter	100	—
Rettenberger et al.	2015	Austria	Article	19.88	15.89–22.88	100	—	Rape	100	—
Shao et al.	2019	China	Article	15.57	15–17	100	28.57	Murder/manslaughter	100	—
Shao et al.	2019	China	Article	16.23	15–17	100	30.77	Rape	100	—
Shepherd et al.	2014	Australia	Article	17.58	14–20	71.43	57.14	Murder/manslaughter	100	—
Van der Put	—	Netherlands	Dataset	16.01[c], 16.68[b]	12.94–18.50	100	—	Rape, murder/manslaughter	—	—
Van der Put	—	US	Dataset	15.03[c], 15.18[d]	12–17	98.81[c], 81.94[c]	18.06[c], 44.13[d]	Rape, violence	—	—
Vries & Liem	2011	Netherlands	Article	16.03	12–17	84.67	51	Murder/manslaughter	100	—
Wakeling et al.	2013	UK/Wales	Article	20.72	16–22	100	27.85	Mix	100	—
Wilpert et al.	2018	Netherlands	Article	18.27	13.72–22.39	100	4.50	Rape	—	—
Wisconsin Statistiscal Analysis Center	1986	US	Report	—	11–17	—	—	Murder/manslaughter	100	—

[a]For youth convicted of murder.
[b]For youth convicted of manslaughter.
[c]For youth convicted of rape.
[d]For youth convicted of violence.

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Table 2. Recidivism Rates and Association Between Length of Imprisonment and Recidivism Per Included Study, A–H.

Article	Year	Length of detention (in months)	Type of recidivism	Follow-up period (in months)	N	% recidivism	% violent recidivism	Length of detention × recidivism (r)
Baudin et al.	2020	0–34	Convicted of a new offense	24–288	1–8	0–100	—	.082[a]
Borduin et al.	1990	4–8	Arrested	36	1–2	0–100	—	—
Busch et al.	2009	—	Adjudicated for rape as an adult	120	223	32.74	—	—
Caudill & Trulson	2016	48.48	Arrested for a felony offense	12–120	221	26.70–57.92	—	—
De Vogel et al.	2004	57.03	New conviction (sex offense/general)	140	40	32.50–65.00	50.00	−.041[b], −.051[a], −.201[c]
Edwards et al.	2005	22.95	New conviction or a warning for a new general, violent or sex offense	—	22	40.91 (4.55 sex)	31.82	—
Grieger (assault)	2012	23.25	Convicted of a new offense	58.35	355	62.50	44.40	−.004[a]
Grieger (Murder/Manslaughter)		60.00	Convicted of a new offense	82.50	72	87.90	20.80	−.201[a]
Hagan & Gust-Brey	1999	8	Convicted of a new offense	60–120	50	74.00–90.00	—	—
Hagan et al.	2001	8	Convicted of a new sexual offense	96	50	16.00	16.00	—
Heide	2019	—	Arrested or violated parole rules	360	48/17	11.76–87.50	—	—
Heide et al.	2001	71	Sentenced to prison or violated parole rules.	12–192	43	18.60–58.14	—	—
Hill et al.	2012	133.92	New conviction (violent or sex offense)	93.36	40	25	40	−.310[c], −.180[b]
Hoogsteder et al.	2018	22.70 (detention), 12.06 (treatment)	Arrested	12 24 36	10	30.00–60.00	0.00–30.00	.494[a,d]; −.244[a,d], −.350[a,e] .213[a,d], −.143[a,e], .114[b,d], .191[b,e]

[a]Correlation between length of detention and overall recidivism (dichotomous).
[b]Correlation between length of detention and violent recidivism (dichotomous).
[c]Correlation between length of detention and sexual recidivism (dichotomous).
[d]Correlation between length of detention and recidivism for youth in a closed youth detention center (JJI) in the Netherlands.
[e]Correlation between length of treatment and recidivism for youth in a closed youth detention center (JJI) in the Netherlands.
*p ≤ .05.

Table 2 (continued). Recidivism Rates and Association Between Length of Imprisonment and Recidivism Per Included Study, K–Z.

Article	Year	Length of detention (in months.)	Type of recidivism	Follow-up period (in months)	N	% recidivism	% violent recidivism	Length of detention × recidivism (r)
Khachatryan et al.	2016a	145.83	Arrested	363	6	66.67	50	−.488[b], .828[a]
Khachatryan et al.	2016b	240	Arrested	368	48	87.50	62.50	—
Khachatryan et al.	2016c	90–118	Arrested	368	11/37	63.64–94.59	45.45–67.57	—
Krause et al.	2020	—	Reported offenses in case files	64.27	183	8.70 (sex) – 50.80 (gen.)	24.00	—
McCarthy et al.	1989	—	Referred to court	24	4–125	25.00–56.00	—	—
McCuish et al.	2016	—	Convicted of a new offense	114.84[d] 80.52[e]	7[d] 19[e]	85.70[d] 64.70[e]	—	—
McCuish et al.	2018	—	Convicted of a new offense between the ages of 20 and 28	124.20	26	65.38	—	—
Myers et al.	2010	—	Convicted of a new offense	120	11	54.55	36.36	—
Rettenberger et al.	2015	11.19	Convicted (violent or sex offense)	30	44	13.64 (sex)	61.36	−.50[c], .200[b]
Shao et al.	2019	—	Not defined	—	7–13	14.29–38.46	—	—
Shepherd et al.	2014	87.85	New charge	18	2	100	—	—
Van der Put (dataset NL)	—	—	General/sexual recidivism	72	34–67	1.50 (sex)–65.70 (gen.)	20.60–32.80	—
Van der Put (dataset US)	—	—	Not defined	—	168–216	22.62–37.04	—	—
Vries & Liem	2011	—	Convicted of a new offense	12–120	63–130	30.77–71.43	—	—
Wakeling et al.	2013	57.82	Convicted of a new (sex) offense	24, 60	51–73	2.00 (sex) – 64.70 (gen.)	13.70–21.60	−.110[b], −.070[c], .160[a]
Wilpert et al.	2018	16.43	Police contact or charge	35.45	22	45.50	9.09	−.340[a]
Wisconsin Statistical Analysis Center	1985	—	Arrested, convicted or arrested and convicted	144	42	50–66.67	—	—

[a]Correlation between length of detention and overall recidivism.
[b]Correlation between length of detention and violent recidivism.
[c]Correlation between length of detention and sexual recidivism.
[d]For youth convicted of murder.
[e]For youth convicted of manslaughter.

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Table 3. Sensitivity Analyses: Average Effect Sizes.

Overall effect	Overall recidivism				Violent recidivism				Length of imprisonment and recidivism			
	#Samples	#ES	Mean ES	95% CI	#Samples	#ES	Mean ES	95% CI	#Samples	#ES	Mean ES	95% CI
Total	27	90	1.46***	1.32–1.60	15	24	1.17***	.95–1.38	10	23	−.06	−.14 to .03
-/- Baudin et al. 2020	26	84	1.47***	1.33–1.62	x	x	x	x	x	x	x	x
-/- Borduin et al. 1990	26	88	1.46***	1.32–1.60	14	22	1.16***	.94–1.39	x	x	x	x
-/- Busch et al. 2009	26	89	1.47***	1.32–1.61	x	x	x	x	x	x	x	x
-/- Caudill & Trulson 2016	26	80	1.45***	1.30–1.60	x	x	x	x	x	x	x	x
-/- De Vogel et al. 2004	x	x	x	x	x	x	x	x	9	20	−.05	−.15 to .05
-/- Edwards et al. 2005	26	88	1.48***	1.34–1.62	x	x	x	x	x	x	x	x
-/- Grieger (N=355))	26	89	1.44***	1.30–1.58	14	23	1.14***	.91–1.37	9	22	−.08	−.20 to .03
-/- Grieger (N=72)	26	89	1.45***	1.31–1.59	14	23	1.18***	.95–1.42	9	22	−.03	−.10 to .04
-/- Hagan & Gust-Brey. 1999	27	88	1.43***	1.29–1.57	x	x	x	x	x	x	x	x
-/- Hagan et al. 2001	27	89	1.47***	1.33–1.62	14	23	1.19***	.96–1.42	x	x	x	x
-/- Heide 2019	27	87	1.46***	1.32–1.60	15	22	1.16***	.94–1.38	x	x	x	x
-/- Heide et al. 2001	27	74	1.47***	1.32–1.62	x	x	x	x	x	x	x	x
-/- Hill et al. 2012	26	88	1.47***	1.33–1.61	14	23	1.19***	.96–1.42	9	21	−.05	−.56 to .46
-/- Hoogsteder et al. 2018	x	x	x	x	x	x	x	x	9	16	−.14	−.71 to .44
-/- Khachatryan et al. 2016a	26	89	1.46***	1.32–1.60	14	23	1.15***	.92–1.37	9	21	−.03	−.52 to .47
-/- Khachatryan et al. 2016b	27	89	1.46***	1.32–1.59	15	23	1.16***	.95–1.38	x	x	x	x
-/- Khachatryan et al. 2016c	27	88	1.45***	1.32–1.59	15	22	1.16***	.95–1.38	x	x	x	x
-/- Krause et al. 2020	26	87	1.49***	1.35–1.62	x	x	x	x	x	x	x	x
-/- McCarthy 1989	26	87	1.46***	1.32–1.60	x	x	x	x	x	x	x	x
-/- McCuish et al. 2018	26	89	1.45***	1.31–1.59	x	x	x	x	x	x	x	x
-/- McCuish et al. 2016	26	88	1.45***	1.31–1.59	x	x	x	x	x	x	x	x
-/- Myers et al. 2010	26	89	1.46***	1.32–1.60	x	x	x	x	x	x	x	x
-/- Rettenberger et al. 2015	26	88	1.46***	1.32–1.60	14	23	1.12***	.91–1.33	9	21	−.09	−.60 to .42
-/- Shao et al. 2019	26	88	1.47***	1.33–1.61	x	x	x	x	x	x	x	x
-/- Shepherd et al. 2014	26	89	1.45***	1.31–1.59	x	x	x	x	x	x	x	x
-/- Van der Put (dataset NL)	26	86	1.48***	1.34–1.62	14	22	1.17***	.93–1.41	x	x	x	x
-/- Van der Put (dataset US)	26	88	1.47***	1.33–1.61	x	x	x	x	x	x	x	x
-/- Vries & Liem 2011	26	85	1.46***	1.31–1.60	x	x	x	x	x	x	x	x
-/- Wakeling et al. 2013	26	86	1.49***	1.36–1.62	14	22	1.19***	.96–1.42	9	20	−.09	−.61 to .44
-/- Wilpert et al. 2018	26	89	1.46***	1.32–1.60	14	23	1.20***	.98–1.42	9	22	−.04	−.12 to .04
-/-Wisconsin Statistical Analysis Center 1986	26	87	1.45***	1.30–1.59	x	x	x	x	x	x	x	x

Note. *p < .05; **p < .01; ***p < .001; x = not applicable.
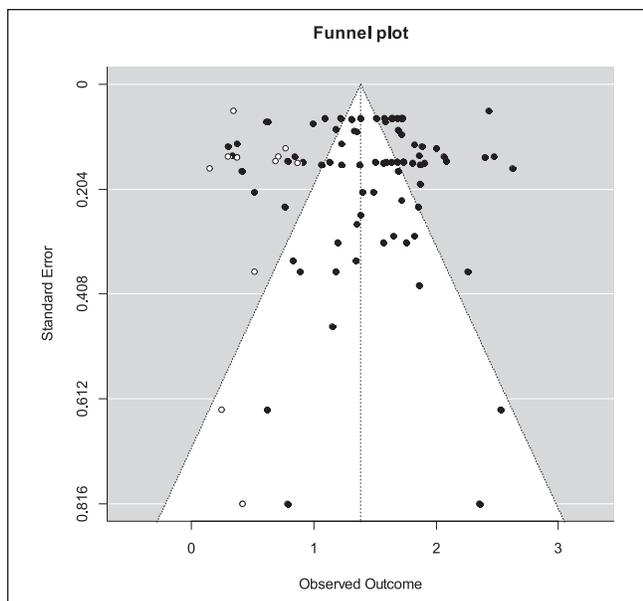CI = confidence interval.

Figure 2. Trim-and-fill plot for overall recidivism, with the standard error on the *y*-axis and *t*-values on the *x*-axis. The black dots denote the observed effect sizes, whereas the white dots denote "missing/filled" effect sizes one would expect to find in a symmetrical distribution of effect sizes.
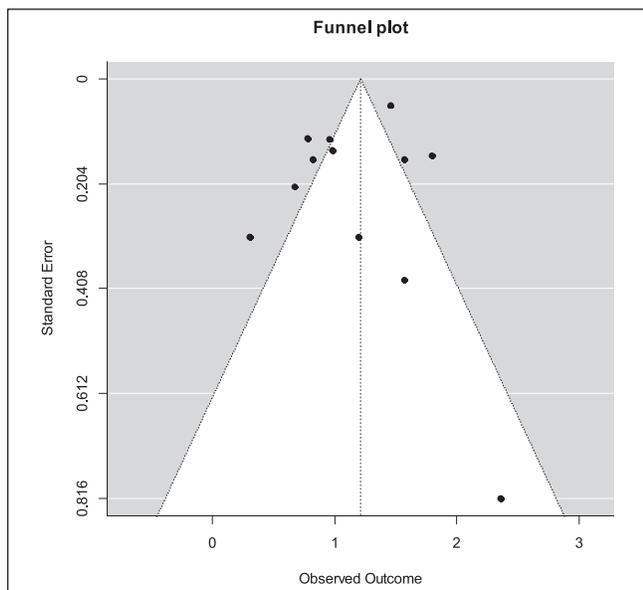

Figure 3. Trim-and-fill plot for violent recidivism, with the standard error on the *y*-axis and *t*-values on the *x*-axis. The black dots denote the observed effect sizes.

how the coded sample and study characteristics affected the mean estimates of the overall and violent recidivism rate.

Moderator Analyses

Various study characteristics were associated with recidivism rates. First, length of follow-up moderated overall recidivism, $F(1,82) = 10.21$, $p < .01$, and violent recidivism, $F(1,21) = 7.37$, $p < .01$. The longer the follow-up, the higher the rate of overall and violent recidivism. Definition of recidivism also moderated overall recidivism rates, $F(4,85) = 11.73$, $p < .001$. Reported recidivism rates were highest when recidivism was defined as an arrest for any new offense, rather than for a specific offense. For ease of interpretation, average recidivism rates were calculated per definition of recidivism. The weighted overall recidivism rate for arrest for any offense was 65.22% (95% CI: 49.96–78.61%), whereas the weighted overall recidivism rate for conviction for any offense, arrest for a specific offense, and conviction for a specific offense amounted to 59.89% (95% CI: 49.46–69.89%), 33.29% (95% CI: 14.45–55.45%), and 16.26% (6.61%; 29.58%), respectively. Because of substantial variation across outcomes in the category "other definition of recidivism," weighted recidivism rates were not considered meaningful for this category. Finally, country moderated overall recidivism rates, $F(2,87) = 4.45$, $p < .01$. Studies conducted in the United States reported higher overall recidivism rates (52.96%, 95% CI: 45.96–59.89%) than studies conducted in European countries (36.14%, 95% CI: 28.67–43.97%).

The only sample characteristic associated with (overall) recidivism was offender group. Overall recidivism was significantly higher for youth who were convicted of (attempted) murder or manslaughter than for youth convicted of rape, $F(2,87) = 3.62$, $p < .05$. More specifically, the weighted overall recidivism rate for youth convicted of murder or manslaughter was 51.96%, whereas the weighted overall recidivism rate for youth convicted of rape amounted to 35.66%. For youth convicted of severe violence, the weighted overall recidivism rate was 37.59%. The results of the moderator analyses are reported in Table 4 for overall recidivism and Table 5 for violent recidivism.

Due to insufficient data, the moderator analysis to test differences in recidivism following custodial versus non-custodial sentences could only be performed for overall recidivism, and was based on a limited number of studies. Only three studies reported overall recidivism rates for youth who received a non-custodial sentence (parole or extramural treatment). The other studies reported on youth who received a custodial sentence. No significant difference in overall recidivism rates between youth who were imposed a custodial sentence and youth who were imposed a non-custodial sentence was indicated, $F(1,76) = .27$, $p = .605$.

Multiple Moderator Models

For overall recidivism rates, correlations between significant moderators were small to moderate and there were no indications of multicollinearity. A multiple moderator model including all variables that were identified as significant moderators in the bivariate analyses yielded a significant regression equation, $F(9,74) = 6.31$, $p < .001$, with only definition of recidivism and country as unique moderators.

Table 4. Results of Moderator Analyses for Overall Recidivism.

Moderator variable	#Samples	#ES	β₀ (95% CI)	β₁ (95% CI)	Omnibus test	p Value	Variance level 2	Variance level 3
Study characteristics								
Year of publication	25	84	1.50 (1.35–1.64)***	−.001 (−.01–.01)	$F(1,82)=.04$	.846	.17***	.04
Impact factor	22	78	1.44 (1.30–1.59)***	−.03 (−.20–.150)	$F(1,76)=.09$	.761	.16***	.04*
Sample size	27	90	1.46 (1.31–1.60)***	0 (−.001–.002)	$F(1,88)=.11$	.736	.19***	.04**
Follow-up period	24	84	1.53 (1.40–1.66)***	.002 (.001–.003)**	$F(1,82)=10.21$	<.01	.17***	.02
Country	26	90			$F(2,87)=4.45$	.006	.20***	0
United States (RC)	10	48	1.63 (1.49–1.77)***					
Europe/EU	13	36	1.29 (1.13–1.45)***	−.34 (−.56 to −.13)**				
Other	4	6	1.71 (1.26–2.16)***	.08 (−.39–.55)				
Definition of recidivism	26	90			$F(4,85)=11.73$	<.001	.10***	.06***
Arrested (any) (RC)	5	12	1.88 (1.57–2.18)***					
Arrested (specific offense)	2	11	1.24 (.78–1.68)***	−.644 (−1.17 to −.12)*				
Convicted (any)	13	26	1.77 (1.56–1.98)***	−.10 (−.46–.26)				
Convicted of a sex offense	6	7	.83 (.52–1.15)***	−1.04 (−1.48 to −.61)***				
Other	9	34	1.28 (1.07–1.50)***	−.59 (−.90 to −.29)***				
Sample characteristics								
Age	23	62	1.43 (1.26–1.60)***	0.001 (−.08 to .08)	$F(1,60)=0.001$	.980	.22***	.05*
Percentage male	24	74	1.42 (1.25–1.58)***	−.01 (−.03–.01)	$F(1,72)=.92$	.340	.23***	.04*
Percentage minority	19	68	1.51 (1.33–1.69)***	.01 (0–.01)	$F(1,66)=2.93$	.091	.14***	.05*
Type of index offense	27	90			$F(2,87)=3.62$	.031	.20***	.01
(Attempted) murder/manslaughter (RC)	15	56	1.61 (1.46–1.75)***					
Rape	12	21	1.28 (1.06–1.51)***	−.32 (−.59 to −.06)*				
Severe violence	5	13	1.32 (1.03–1.61)***	−.28 (−.61–.04)				
Sentence characteristics								
Setting of sentence	22	78			$F(1,76)=.27$	.605	.16***	.03
Custodial (RC)	20	74	1.52 (1.38–1.66)***					
Non-custodial	3	4	1.70 (1.04–2.36)***	.18 (−.50–.85)				

Note. *$p<.05$; **$p<.01$; ***$p<.001$. ES = effect size; RC = reference category; β₁ estimated regression coefficient.

Table 5. Results of Moderator Analyses for Violent Recidivism.

Moderator variable	#Samples	#ES	β_0 (95% CI)	β_1 (95% CI)	Omnibus test	p Value	Variance level 2	Variance level 3
Study characteristics								
Year of publication	14	22	1.18 (.92–1.43)***	−.004 (−.04 to .03)	$F(1,20)=.07$	.796	0	.16***
Impact factor	12	19	1.15 (.87–1.44)***	−.08 (−.45 to .29)	$F(1,17)=.21$	.649	.01	.18**
Sample size	15	24	1.16 (.93–1.38)***	.001 (−.001–.003)	$F(1,22)=.65$	.430	.001	.14***
Follow-up period	14	23	1.17 (.98–1.37)***	.002 (.001–.004)**	$F(1,21)=8.75$	.007	0	.10*
Country	15	24			$F(1,22)=-1.09$	.308	.002	.13*
United States (RC)	4	9	1.37 (.91–1.84)***					
Europe/EU	11	15	1.11 (.86–1.35)***	−.27 (−.80–.26)				
Definition of recidivism	15	24			$F(3,20)=.55$	.653	0	.15***
Arrested (any violent) (RC)	4	11	1.31 (.81–1.81)***					
Convicted (any violent)	6	7	1.24 (.89–1.59)***	−.07 (−.68–.54)				
Convicted of a violent sex offense	1	1	.84 (−.03–1.71)	−.47 (−1.47 to .53)				
Other	4	5	1.02 (.58–1.46)***	−.29 (−.96–.37)				
Sample characteristics								
Age	13	20	1.18 (.92–1.45)***	.004 (−.12–.14)	$F(1,18)=.002$	.968	.01	.15***
Percentage male	15	24	1.23 (.98–1.48)***	−.03 (−.09–.02)	$F(1,22)=1.36$	.256	0	.14***
Percentage minority	9	15	1.17 (.81–1.53)***	.003 (−.01 to .01)	$F(1,13)=.36$	.562	0	.17***
Type of offense	15	24	1.24 (.92–1.56)***		$F(2,21)=.33$	.719	0	.16***
(Attempted) murder/ manslaughter (RC)	6	12						
Rape	8	9	1.11 (.81–1.41)***	−.13 (−.47 to .21)				
Severe violence	2	3	1.16 (.56–1.77)***	−.08 (−.76 to .61)				

Note. *$p < .05$; **$p < .01$; ***$p < .001$. ES = effect size; RC = reference category; β_1 estimated regression coefficient.
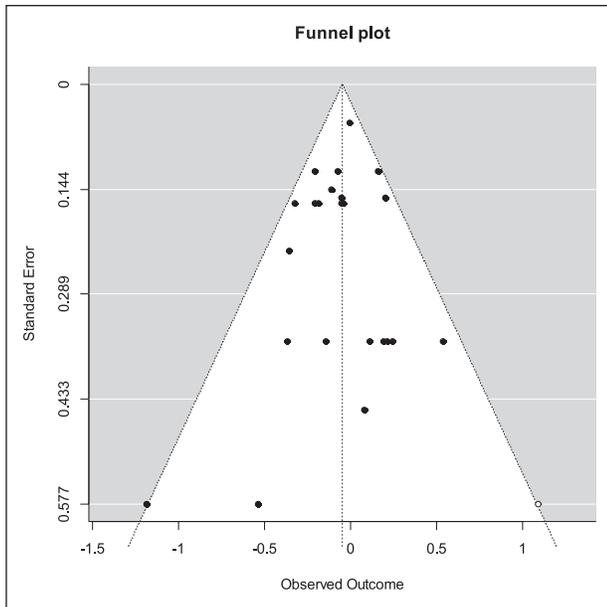
Figure 4. Trim-and-fill plot for the association between length of imprisonment and recidivism, with the standard error on the y-axis and Fisher's z-values on the x-axis. The black dots denote the observed effect sizes, whereas the white dot denotes the "missing/filled" effect size.

Overall recidivism rates were higher when recidivism was defined as an arrest for any new offense rather than for a specific offense and in studies conducted in the United States versus European studies. For violent recidivism rates, no multiple moderator model was tested as only length of follow-up came out as significant in the bivariate models.

The Overall Association Between Length of Imprisonment and Recidivism

In 10 independent samples generating 23 effect sizes, the association between length of imprisonment and recidivism was assessed. A meta-analysis indicated no significant overall association, $r = -.06$ (95% CI $= -0.14$ to 0.03), $t(22) = -1.38$, $p = .181$. Sensitivity analyses demonstrated that individual primary studies did not substantially affect this overall association (Table 3). The funnel plot (Figure 4) shows one missing effect size to the right of the estimated overall effect, suggesting that the estimated overall effect may be an underestimation of the true overall effect. Therefore, a "corrected" overall effect size was estimated for the association between length of imprisonment and recidivism. The adjusted effect size was still not significant and very similar to the originally estimated overall association, $r = -.05$ (95% CI $= -0.12$ to 0.02), $t(23) = -1.29$, $p = .198$. Finally, as there was no within-study, $\chi^2 (1) = 0$, $p = .398$, nor between-study heterogeneity, $\chi^2 (1) = 0$, $p > .499$, no moderator analyses were conducted for the association between length of imprisonment and recidivism.

Conclusion and Discussion

To provide insight in recidivism rates of youth who committed serious violent or sex offenses, in differences in recidivism following custodial and non-custodial sentences, and in the association between length of imprisonment and recidivism in serious youth offenders, we systematically searched for relevant studies and data and conducted three separate meta-analyses. The first meta-analysis synthesized 27 studies and four datasets (27 independent samples with $N = 2,308$ participants), and revealed a weighted overall recidivism rate of 44.47% (95% CI: 37.59–51.46%) over an average period of 8.68 years. This estimated overall recidivism rate may be an overestimation of the true recidivism rate, given the underrepresentation of relatively low overall recidivism rates in the included studies. The corrected and somewhat smaller rate of 40.52% (95% CI: 35.19–46.46%) may be a better estimation of the overall recidivism rate. The second meta-analysis on violent recidivism synthesized 14 studies and three datasets, and revealed a weighted recidivism rate of 30.49% (95% CI: 20.92–40.52%), over an average period of 11.45 years.

Overall recidivism rates were uniquely associated with definition of recidivism and country in which a primary study was conducted. As can be expected, in studies that defined recidivism as an arrest or conviction for any new offense, rather than for a specific type of offense, recidivism rates were highest. Even when taking the influence of this and other identified predictors of recidivism rate into account, overall recidivism rates were higher in studies conducted in the United States than in studies conducted in European countries. Although we cannot rule out that unidentified predictors of recidivism rate may have contributed to this difference between geographic locations, this finding may also indicate that after being convicted of a serious violent or sex offense, European youth have a higher likelihood of desistance than their American counterparts. Whether differences in sentencing and opportunities for rehabilitation and reintegration between geographic locations contribute to this finding remains to be investigated in future research. Length of follow-up varied widely across studies and longer follow-up periods uniquely predicted violent recidivism rates. This indicates that with the passage of time, young serious offenders remain vulnerable to recidivism, and violent recidivism in particular.

Given the large variation in definitions of recidivism and follow-up periods in the included studies, the weighted overall and violent recidivism rates cannot be unequivocally compared to recidivism rates for other groups of offenders. The difference in definitions of recidivism across studies that was ascertained in the current meta-analytic study aligns with findings of previous reviews on criminal recidivism rates in prisoner populations (Fazel & Wolf, 2015; Yukhnenko, Sridhar, & Fazel, 2020). More consistent and transparent reporting of recidivism rates, for which a checklist has been

developed by Fazel, Wolf, and Yukhnenko (2019), would enhance comparability of study results.

The mildly criminogenic effects of imprisonment found in earlier reviews focusing on youth offenders in general (Black, 2016) and offenders irrespective of age (Petrich et al., 2020) were not confirmed for youth who committed serious violent or sex offenses. We found no differences in recidivism rates following custodial and non-custodial sentences. Yet, this finding should be interpreted with caution. Only three studies reported (overall) recidivism rates for youth who received a non-custodial sentence (parole or extramural treatment), whereas all other studies reported on youth who received a custodial sentence after committing serious violent or sex offenses. Identifying such few studies into non-custodial sentences aligns with findings from a comparative study into the sentencing of youth offenders who committed serious violent and sex offenses. In six European countries, murder, manslaughter, and rape committed by youth offenders were invariably sentenced with custodial sentences. More variation in sentences was observed for other serious offenses such as assault, violent robbery, and sexual abuse (Asscher et al., 2020), making the study of differences in recidivism rates following custodial and non-custodial sentences more feasible for the group of youth who committed serious violent offenses other than murder, manslaughter, and rape.

A significant aspect to consider when comparing custodial and non-custodial sentences in relation to recidivism rates is a possible selection effect where youth offenders with the highest likelihood to recidivate are most likely to receive longer custodial sentences. Recidivism after custodial sentences can also be explained by factors other than the custodial sentence itself. For example, following Moffitt's (2006) distinction between adolescence-limited offenders, where the origins of delinquent behavior can be found in social processes and desistance will follow in adulthood, and life-course-persistent offenders with origins of (persistent) delinquent behavior in neurodevelopmental processes, recidivism rates of life-course-persistent offenders are more likely to be explained by the risk factors present than by type of sentence imposed.

The third meta-analysis did not reveal a significant association between length of imprisonment and recidivism, a finding that was unlikely to be influenced by publication bias or a disproportionate impact of one of the individual studies. With the exception of a negative effect in one of the included studies, based on only six participants (Khachatryan et al., 2016), the relation between length of imprisonment and recidivism was non-significant in each of the included studies. As such, this study does not indicate that longer custodial sentences are associated with decreases or increases in recidivism rates among youth who committed serious crimes.

Various studies have concluded that imprisonment results in undesirable side effects, for instance by harming positive and meaningful relationships with adults and peers, and limiting a youth's social perspective (Van Ham & Ferwerda, 2018). In addition, it has been demonstrated that incarcerated youth showed precocious (financial) independence from parents relative to their never-incarcerated age-mates, which can hinder them from acquiring the skills and resources needed for longer-term independence (Sienninck & Widdowson, 2017). Unfortunately, none of the studies included in the current review reported on associations between sentencing and other outcomes for youth convicted of serious offenses. Although not linked to sentencing, Heide (2019) did report on outcomes other than recidivism, based on interviews with 19 youth convicted of murder. She described that, after release from prison, substance use was common, two-thirds had difficulties finding a job, only a small number took up a study, and less than half took part in counseling or support groups. To further establish the association between sentencing and rehabilitation for youth who committed serious crimes, more research is needed, focusing on both recidivism and other rehabilitation outcomes in relation to imposed sentences. Such research should also focus on incarceration versus rehabilitation (i.e., secure vs. residential treatment facilities), as previous research suggests that facility type influences the effects of confinement (Dmitrieva et al., 2012). On a related note, we recommend future research on the link between sentences and rehabilitation to take attunement of treatment (as part of the sentence) to the individual offender into account. Youth offenders report high rates of adverse childhood experiences (Baglivio et al., 2014) and show severe behavioral issues that cause and intensify their delinquent behavior. As such, mere incarceration is considered an ineffective solution, and treatment is needed to promote rehabilitation chances (Lambie & Randell, 2013). According to Andrews and Bonta (2010), interventions to prevent further criminal behavior should adhere to the Risk, Need, and Responsivity (RNR) principles, that is, be attuned to the recidivism risk, criminogenic needs, and responsivity of the individual offender, in order to be effective (Andrews & Bonta, 2010). As such, the level to which court-ordered treatments are carried out in adherence with RNR principles will likely affect their potential to effectively reduce recidivism.

It is important to acknowledge that this study is based on correlational data, implying that no causal inferences can be drawn concerning the effects of imposed sentences. Moreover, a few limitations should be kept in mind when interpreting the results of the current study. First, although 15 of the 178 author requests yielded additional information, meaning the current study contains specific, previously unavailable information, a substantial number of authors did not respond. In addition, we cannot rule out that primary studies that were excluded in the second screening because of lacking sample information about index offense and age at index offense, did produce results that were eligible for inclusion in the current review. As a consequence, relevant primary data may be missing from this review, which may

have impacted the results. Second, many of the included studies were not originally set up to study recidivism among youth who committed serious violent or sex offenses, although we were able to include these studies because authors provided the requested information on specific subgroups of the studied sample. Yet, this approach contributed to the inclusion of small sample studies that resulted in a relatively low statistical power in the current meta-analyses. In addition, this approach made a regular risk of bias assessment, which is often used in meta-analytes to take study quality into account, less suitable. A third limitation concerns the variation in definitions of recidivism across the included studies. As overall recidivism rates were dependent on definition of recidivism, variation in definition of recidivism has likely affected the associations of type of sentence (custodial vs. non-custodial) and length of imprisonment with recidivism rates. Fourth, the included primary data mostly originated from Western countries. Given the lack of representation of non-Western countries in primary research, the current results cannot be generalized to non-Western countries. Research into the link between sentencing and recidivism among youth who committed serious violent or sex offenses in non-Western countries is needed to further increase our understanding of the effectiveness of sentences.

In conclusion, this meta-analytic study demonstrates that recidivism rates of youth convicted of serious violent and sexual offenses are substantial, with an estimated 44.47% of youth offenders recidivating. Research focusing on the link between sentencing and recidivism for this group of offenders is scarce, and provides at this point no indications that (longer) custodial sentences are associated with decreases or increases in recidivism rates among youth who committed serious crimes. To increase rehabilitation chances for youth offenders, further research is warranted to ascertain what is needed to make custodial and non-custodial sentences more effective.

Summary of Critical Findings

- A total of 27 manuscripts and four datasets with 2,308 participants were included. Most studies were conducted in the United States (45.2%) and in European countries (41.9%).
- Overall recidivism of youth who committed severe violent or sex offenses was estimated at 44.47% (95% CI: 37.59–51.46%) over an average period of 104.17 months. Violent recidivism was estimated at 30.49% (95% CI: 20.92–40.52%) over an average period of 137.43 months.
- Research on the association between sentencing and recidivism in serious young offenders is scarce.
- Currently, there are no indications that (longer) custodial sentences affect recidivism rates in serious young offenders.

Summary of Implications for Practice, Research, and Policy

- Further research is needed to better understand the impact of sentences on recidivism.
- More consistent and transparent reporting of recidivism rates is recommended to enhance comparability of study results.
- To provide a more complete picture of the effects of sentences, future research should focus on rehabilitation outcomes other than recidivism, in relation to imposed sentences.
- To increase rehabilitation chances for youth offenders, further research is warranted to ascertain what is needed to make custodial and non-custodial sentences more effective.

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