



Community investment interventions as a means for decarceration: A scoping review

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Summary

There is growing support to reverse mass incarceration in the United States, especially in the wake of the COVID-19 pandemic. Little is known about what types and scale of community investments are most effective to support mass decarceration. Using a public health prevention framework, we conducted a scoping review to examine community-based programs that reduced criminal legal involvement. We searched PubMed, Embase and three EBSCO databases from 1990 through September 2019 for all experimental or quasi-experimental studies testing interventions pertaining to education, housing, healthcare, employment, or social support services and how they affected an individual's criminal legal outcomes. Our review identified 53 studies that demonstrated the efficacy of early childhood educational interventions and nurse-family partnership programs, post-secondary education for incarcerated students, navigation programs linking incarcerated people to community resources, and peer support upon release to reduce criminal legal system exposure. In concert with legislative action to end mass incarceration, additional research is needed to test interventions designed to achieve mass decarceration which cross multiple domains, inter-rogate community-level impacts and ascertain long-term outcomes.

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Introduction

For four decades, the United States has sustained the most expansive correctional system in the world, a phenomenon known as mass incarceration.¹ A reigning feature is the disproportionate criminalization of Black, Latinx, and Indigenous people. Mounting evidence finds that incarceration – indeed, any exposure to the criminal legal system – is deleterious to individual, family, and community health. Individuals who experience criminal legal exposure ranging from community surveillance to incarceration have a higher risk of early mortality, higher rates of communicable and non-communicable disease, and worse disease control following release compared with those never incarcerated.²⁻⁵ Negative health outcomes and lower well-being are found in family members of those incarcerated⁶ and even those

who live in communities with high rates of incarceration.⁷ Attempts to achieve health equity may fail in absence of large-scale *decarceration* – the reversal of mass incarceration by minimizing the incarcerated population.⁸

There is increasing support within the public health and medical communities to decarcerate, especially in the wake of COVID-19,^{9,10} with calls to focus on equity, with attention to the structural causes which account for the vast racialized and socioeconomic disparities in incarceration rates.¹¹ Scholars argue that reducing the number of people incarcerated will require targeted investments in the community safety net to support those impacted by mass incarceration,¹² the after-effects of which are expected to last for generations.¹³ However, there is neither a blueprint nor consensus for how to reduce carceral populations beyond criminal legal system reform. To inform both policymakers and practitioners, we conducted a systematic scoping review of existing literature to identify data-driven approaches to decarcerate that fall outside the criminal legal system. We offer a framework for decarceration policy and

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future research that has the potential to support the communities most impacted by mass incarceration and long targeted for resource disinvestment.

Methods

In this review, we apply a public health framework to decarceration, in order to prioritize the health of individuals and communities.¹⁴ The prevention model for any unhealthy exposure includes graduated levels. Primary prevention aims to prevent exposure before it occurs, secondary prevention aims to reduce harm after exposure and prevent re-exposure, and tertiary prevention aims to improve the health of those with continued exposure.¹⁵ This framework helps identify multi-pronged approaches to reduce population risk; interventions focused on primary prevention reduce incident incarceration and interventions focused on secondary prevention reduce re-incarceration. Tertiary prevention, which is also essential to decarceration efforts, will not be addressed in this paper because such programs are primarily prison-based interventions.

The objective of our scoping review was to assess and synthesize the present body of experimental studies in public health, social science, and economic literature and identify knowledge gaps to inform public policy and future research.¹⁶ In his book *Homeward*, sociologist Bruce Western introduced the idea of “thick public safety”—the community services required to afford a stable and safe livelihood—as a necessary prerequisite for avoiding initial and repeated criminal legal contact. He writes, “[a] reimagined criminal justice will concede some jurisdiction over the policy task of public safety to other agencies—departments of housing, child services, public health, education, and labor.”¹⁷ To expand upon the evidence behind this concept, we synthesized peer-reviewed studies that empirically tested how such community services—specifically defined as education, housing, healthcare, employment, or social support programs not managed by the criminal legal system—affected primary or secondary incarceration. We considered interventions to be programs, policies, or laws and we only focused on individual-level incarceration outcomes. We further described areas for which research is limited.

E.W., L.P., J.C., and L.H. developed a protocol *a priori* using the Joanna Briggs Institute Scoping Review Template Guidelines.¹⁸ Because PROSPERO did not accept protocols for scoping reviews as of January 2021, this finalized protocol was not registered but has been included in supplementary materials (*Appendix A*).

Study Selection Criteria

We searched for experimental or quasi-experimental studies which measured the impact of community

interventions (programs, policies, or laws) pertaining to education, housing, healthcare, employment, or social support on individual-level criminal legal involvement. Interventions could target individuals, families, or communities. We restricted the search to studies published after 1990 and excluded studies conducted outside the United States to reflect outcomes measured in the country’s modern criminal legal system. We also excluded studies which evaluated specific treatments for substance use disorder or the impact of psychotherapeutic techniques, as these have been studied elsewhere, unless they incorporated components within the specified domains.¹⁹ We excluded studies analyzing the effect of criminal policy reform (i.e., reduction in mandatory sentencing laws). Lastly, to narrow the focus of our study, we excluded studies where the outcome was a community rate of arrest, crime, or violence, as we were interested in individual-level outcomes, but analyzing community-level outcomes should be the focus of future work.

Data Sources and Searches

We searched PubMed, Embase, three EBSCO databases (ERIC, PsycINFO and Criminal Justice Abstracts with Full Text) from January 1990 through September 2019. The full search strategy is available in *Appendix B*. Additional studies were identified in reference lists of included studies, relevant systematic reviews, or by recommendation from an interdisciplinary field of experts organized by the Square One Project at the Columbia University Justice Lab.

Study Selection

J.C. conducted the search. Six authors (L.H., E.L., K.T., A.H., D.T., S.M.H.) screened all titles and abstracts according to inclusion and exclusion criteria. Two authors (L.H. and E.L.) independently reviewed all full-text articles. Discrepancies were decided by consensus after additional discussion with authors L.P. and E.W.

Data Collection and Synthesis

The following information was extracted from each study deemed eligible for inclusion, using a uniform extraction form (missing data were documented):

- Study title, author, journal, year published
- Census region, setting (prison, jail, community, bridge [both correctional facility and community], other), age of target population
- Intervention description: domain (education, housing, healthcare, employment, social support) and intervention type (individual, family, community level)

- Study design (randomized controlled trial [RCT] versus quasi-experimental), year of intervention, sample size, duration follow-up
- Primary versus secondary prevention; outcome measures (arrest, conviction, incarceration, revocation, days incarcerated)
- Study findings (quantitative results and statistical significance)
- Funding source (government [NIH], government [other federal], government [state], philanthropy)

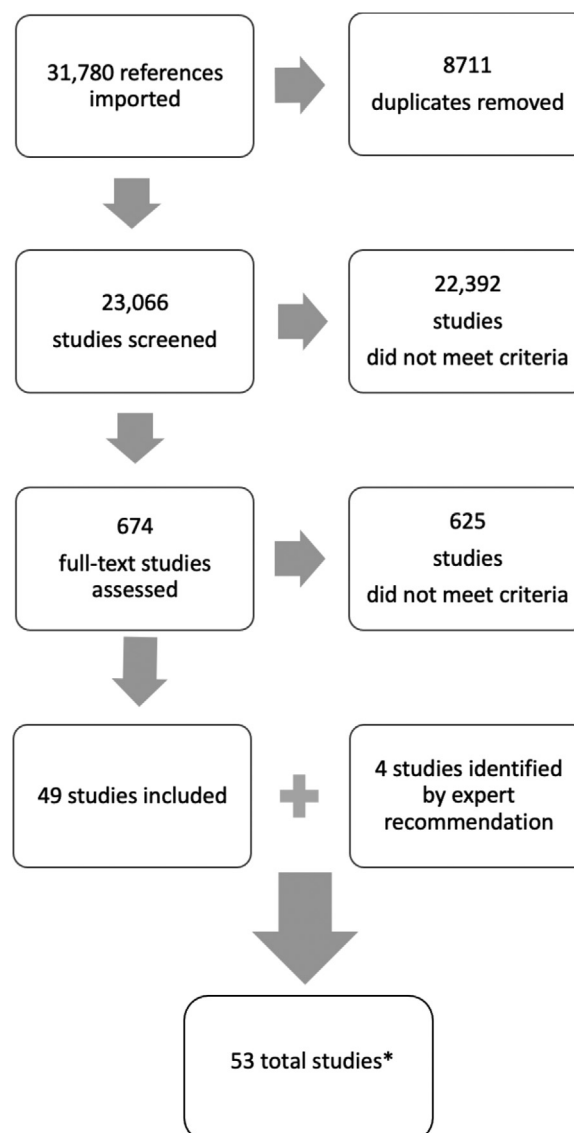
Results

The initial search identified 31,780 abstracts, with 23,066 remaining after removing duplicates (Figure 1). Of these, we identified 674 for full text review, of which 49 articles were deemed to meet study criteria. We identified an additional 4 articles in references or by expert recommendation, totaling 53 articles. These 53 articles describe 43 interventions, as several interventions were evaluated by multiple peer-reviewed manuscripts with distinct follow-up periods.

Characteristics of the Included Studies

Of the 43 interventions, 14 targeted primary prevention of incarceration²⁰⁻³⁷ and 29 targeted secondary prevention (Tables 1, 2 and 3).³⁸⁻⁶⁸ Ten interventions fell within education,^{20-27,38-40} 3 within housing,^{28,29,41,42} 7 within healthcare,^{30-34,43-47} 8 within employment,^{37,48-54} and 15 within social support.^{35,36,55-68} Twenty-eight were designed as randomized control trials (RCTs),^{20,23-34,36,37,42,43,46,48,50,53,54,56,57,60-64,66-68} and 15 employed quasi-experimental design,^{21,22,35,38-41,44,45,47,49,51,52,55,58,59,65} predominantly using propensity-score matching. Table 1 describes characteristics of the included studies. By definition, all primary prevention interventions took place in the community; most secondary prevention interventions were community-based (N=17)^{41-48,50,53,54,59-64,68} or served as a bridge between incarceration and return to the community (N=8).^{49,51,55,57,58,65-67} Most studies focused on individual-level interventions (N=29),^{25,34-68} while far fewer focused on family-level interventions (N=6),^{20-24,28-33,69,70} or policy interventions (N=7),^{26-29,41,44,45,54,65} and one only evaluated changes in the law.⁵⁹

To efficiently synthesize the results of our findings, we describe three types of primary interventions and three categories of secondary prevention with greatest supporting evidence. We explore all interventions in the healthcare domain given the public health lens of our analysis. To conclude our data reporting, we review unifying themes of ineffective interventions. We provide a visual of effective interventions over the life course in Figure 2.



*Describing 43 distinct interventions

Figure 1. Prisma flow diagram of study selection.

Primary Prevention

Of the 14 interventions aimed at reducing primary incarceration, we select three to discuss in detail because they included rigorous study design, demonstrated large effect sizes, were replicated across regions, and analyzed long-term outcomes.

Early Childhood Education

There have been significant efforts to understand the impact of early childhood education on future incarceration. We identified four intensive early education interventions for children.²⁰⁻²⁵ The High/Scope Perry Preschool RCT evaluated an “active learning” preschool

	Primary Incarceration N= 14	Secondary Incarceration N= 29
Domain		
Education	7	3
Housing	1	2
Healthcare	3	4
Employment	1	7
Social Services	2	13
Region (Census region)		
Northeast	2	5
Midwest	7	12
South	3	3
West	0	5
Multi-Site	1	3
Unstated	1	1
Setting		
Prison	n/a	4
Jail	n/a	0
Community	14	17
Bridge – incarceration to community	n/a	8
Other	n/a	0
Funding Source		
Government (NIH)	4	5
Government (Other Federal)	3	9
Government (State)	0	6
Philanthropy	2	2
Unstated	5	7
Age of target population		
Youth	12	7
Adult	2	22
Duration of follow-up		
0-4 years	5	25
5 years to 9 years	1	3
10 years or greater	8	1
Intervention level		
Individual	11	24
Family	6	0
Policy/law	3	5
Reduce Criminal Legal Involvement		
Yes	11	17
No	3	12

Table 1: Characteristics of included studies by intervention level.

program plus a 1.5-hour weekly home visit for children between the ages of 3-4 years in Ypsilanti, Michigan. Follow-up studies have documented lower rates of five or more arrests among participants in the treatment arm after two decades of follow up compared to those randomized to standard preschool (7% versus 35%).^{23,24} An evaluation of the Chicago Child-Parent Center (CPC) using a quasi-experimental study design also found lower rates of arrest for adolescents and emerging adults twenty-four years after their participation in the program (17% vs. 25%, $p < 0.01$). The CPC provided wraparound services for preschool children through

third grade, which included parental involvement, a structured curriculum focusing on language and basic skills development, and continuity between preschool and early elementary school.^{21,22} The Fast Track Prevention program in Durham, NC, Nashville, TN, rural PA, and Seattle, WA, also focused on education, social skills, parent-child interactions, and other topics tailored to each age group, for children in kindergarten with conduct problems as defined by teacher report. This program resulted in a 34.7% relative decline in substance-related convictions and a 30.9% relative decrease in violent crime convictions at age 25.²⁰ Notable similarities

	Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Education	Dodge et al. 2015	RCT	1991-1993	Fast Track program: programming including parents and children for kindergartners deemed high-risk	N=891	Conviction	Yes	Convictions (violent): 30.9% reduction (p=0.04); Convictions (drug): 34.7% reduction (p=0.03). No difference property/public order convictions.
	Reynolds et al. 2001	Quasi	1983-1989	Children-Parent Center: preschool-third grade and wraparound services for students and parents	Youth N=677	(20+ years) Arrest	Yes	Arrest (any): 8% reduction (p<0.001); arrest (violent): 5.2% reduction (p<0.01).
	Giovanelli et al. 2018 Weikart et al. 1998	RCT	1967	High Scope/Perry Preschool: high quality preschool with focus on parental involvement	Youth N=123	(15+ years) Arrest	Yes	Arrest (5+): 28% absolute reduction (p<0.05);
	Schweinhart and Weikart 1997	RCT	1967	High Scope/Perry Preschool Curriculum	Youth N=68	(25 years) Arrest	Yes	Arrest (mean): 0.2 treatment group versus 0.9 control (p=0.04); arrests (property): 0.0 treatment group versus 0.9 control (p=0.01); no difference violent crime arrests.
	Campbell et al. 2012	RCT	1972-1977	Abecedarian Project: Intensive early childhood education, no parental component	Youth N=111	(20 years) Felony/Misdemeanor Conviction	No	No observed difference between treatment groups in risk of criminal conviction.
	Deming et al. 2011	RCT	2002	First-choice middle or high school enrollment by random lottery in Charlotte, NC (all male population)	Youth N=44,028	(30 years) Arrests, Incarcerations	Yes	Arrest: 45% reduction (felony) and 70% reduction (drug felony) for high-risk HS winners.
	Cullen, et al. 2006	RCT	2000-2001	Attending school of choice in Chicago Public School lottery system	N=19,520	(7 years) Arrests	Yes	Incarceration: 50% shorter prison sentence length for high-risk lottery winners Arrest: 5% reduction (p<0.05)
					Youth			

Table 2 (Continued)

	Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Housing	Kling et al. 2005 and Sciandra et al. 2013	RCT	1994-1998	Moving to Opportunity: housing voucher +/- move to lower poverty neighborhood	N=4643	Arrest	Yes	Females: decreased arrests (property & violent)
					Youth	(10 years)	Males: decreased arrests (violent) increased arrests (property)	
Healthcare	Kitzman et al. 2019	RCT	1990-1991	Nurse Family Partnership: Prenatal Care via Home Nurse	N=742	Arrest/Conviction	Yes	Arrests (girls): no differences detected
					Infant	(18 years)	Convictions (girls): 53% reduction among female participants (p=0.08) No detectable differences among boys.	
	Olds et al. 1997	RCT	1978-1980	Nurse Family Partnership: Prenatal/Infant Care via Home Nurse	N=400	Arrest/Conviction	Yes	Arrests (girls): 77% reduction (p<0.05)
	Olds et al. 1998		Infant		(19 years)	Convictions (girls): 80% reduction (p<0.05) No detectable differences among boys. Mothers also found to have signifi- cantly fewer arrests and convic- tions (p<0.10)		
Echkenrode et al. 2010						No detectable differences between the treatment groups.		
Employment	Zun et al. 2006	RCT	1998-1999	Hospital-based violence pre- vention: intensive case management	N=188	Incarceration/Arrest	No	No detectable differences between the treatment groups.
					Youth	(12 months)		
Employment	Heller 2016	RCT	2012	One Summer Plus: 8-week, part-time employment + mentorship	N=1634	Arrest	Yes	Arrests (violent): 43% relative reduction
					Youth	(16 months)		

Table 2 (Continued)

Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Social Support Weiss et al. 2013	RCT	(-)	Multisystemic Therapy (MST) – cognitive behavioral therapy + family and school support	N=164	Arrest	No	No detectable differences between the treatment groups.
Levine et al. 2019	Quasi	(2001)	Guardian Model: intensive care coordination for client with severe mental illness (SMI) + guardian	Youth N=217 Adults with SMI (3 years)	(2.5 years) Arrest	Yes	Arrests: 0.25 reduction in arrests (p<.001)

Table 2: Detailed Description of Interventions Evaluating Primary Prevention of Criminal Legal Involvement (CLI).
 RCT = randomized controlled trial; Quasi = quasi-experimental design; CLI = criminal legal involvement.

of these programs were involvement of parent and child, sustained programmatic funding, and the generation of positive outcomes measured decades after the intervention.

One early childhood intervention, however, did not reduce incarceration exposure among the treatment group. An RCT evaluating The Abecedarian Project, an intensive early childhood education targeting children considered at risk for academic failure found no significant difference between intervention and control groups in conviction or incarceration as late as 30 years from the intervention.²⁵ The authors considered that this intervention was the only early education program which did not include a component of parental involvement, though they did not formally study the cause of this discrepant finding.

Nurse-Family Partnership

The Nurse-Family Partnership, in which a nurse attended multiple in-home visits to low-income, first-time pregnant mothers, has been rigorously studied and reproduced in multiple regions across the United States with over a decade of participant follow-up.^{30,32,33} The home visits start prenatally and continue through the first two years of the infant's life. Prenatal efforts include behavior change (i.e., cessation of smoking) and retention in prenatal and early pediatric care. Post-natal efforts address home safety, emotional care, breast-feeding, domestic violence, and access to social supports. Our review identified four manuscripts evaluating the intervention replicated in two sites: Elmira, NY and Memphis, TN.^{30,31,33,70} Treatment effects were strong, especially for female children and mothers. Girls in the Elmira study treatment group were less likely to have an arrest (10% versus 30%) or conviction (4% versus 20%) after nearly two decades of follow-up. Further, mothers who received visits had significantly fewer arrests 15 years later (adjusted incident rates 0.18 versus 0.90 p<0.05). Mothers had a longer interval to their next pregnancy and female children were more likely to be older at the time of their first pregnancy. A follow-up mediation analysis on the relationship between the intervention and reduced rates of child maltreatment underscored the stabilizing role of enhanced family planning and improved income through public assistance.⁶⁹

Moving To Opportunity

Moving To Opportunity was a large, government-funded policy initiative from the 1990s. The Department of Housing and Urban Development randomly offered low-income families in high-poverty neighborhoods either 1) a housing voucher which could only be used in neighborhoods with lower rates of poverty (*treatment arm*), 2) a housing voucher which could be used anywhere, or 3) no housing voucher.^{28,29} Two peer-

	Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Education	Duwe and Clark 2014	Quasi	2007-2008	Completion of secondary (GED/HS) or post-secondary degree	N=1,386 Incarcerated Adults	Rearrest/Reconviction/ Reincarceration (2-3 years)	Yes	Post-secondary Degree: Rearrest: 14% reduction; Reconviction: 16% reduction; Reincarceration: 24% reduction (p<0.01) Secondary degree alone: no difference in any measure.
	Kim et al. 2013	Quasi	2005-2008	Earning a 1-year certificate/associates degree /bachelor's degree in prison	N=680 Incarcerated Adults	Rearrest (3 years)	Yes	Rearrest: 53% reduction at 3 years p<0.001
	Zgoba et al. 2008	Quasi	1999-2000	GED receipt while incarcerated	N=403 Reentering Adults	Rearrests/Reconvictions/ Recarceration (6-7 years)	No	No difference between treatment groups for number of rearrests or time to rearrest.
Housing	Hamilton et al. 2013	Quasi	2009	3-month housing voucher	N=3237 Reentering Adults	Rearrest/Reincarceration (1 year)	No	No statistically significant differences between rearrest or reincarceration rates.

Table 3 (Continued)

	Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
	Kirk et al. 2018	RCT	2015-2016	MOVE: 6-month housing assistance – Pilot Study	N=30	Rearrest	No	No statistically significant differences between rearrest rates; study was not powered to detect differences.
Healthcare	Cooper et al. 2006	RCT	1999-2001	Hospital-based violence prevention: social worker + individualized service plan	Reentering Adults N=100	Rearrest/Reconviction	Yes	Rearrest (violent crime): 39% reduction; conviction (violent crime): 40% reduction; reconviction (any): 43% reduction p<0.001
	Grabert et al. 2017	Quasi	2005-2006	Grabert: expedited Medicaid	Adults on Supervision N=3086	(1-2 years) Rearrest/Reincarceration	No	No statistically significant differences between rearrest or reincarceration rates.
	Domino et al. 2019			Domino: treatment group plus timely mental health appointment and filled anti-psychotropic medication	Reentering Adults - SMI	(3 years)		
	Wang et al. 2012	RCT	2007-2009	Transitions Clinic Network: Primary care and case management from a formerly incarcerated community health worker	N=200	Arrests	No	No statistically significant differences between arrest rates.

Table 3 (Continued)

Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Wang et al. 2019	Quasi	2013-2016	Transitions Clinic Network: Primary care and case management from a formerly incarcerated community health worker	Adults with Chronic Health conditions or age>50 years old N=188	(12 months) Rearrest/New Conviction/ violations/days incarcerated	Yes	No difference in rearrest or new conviction. Violation: 5.3% reduction (p<0.05); Day incarcerated: 86 day reduction (p<0.001)
Employment Bond et al. 2015	RCT	2011-2012	"Individual Placement and Support": specialized, intensive employment assistance	Adults with Chronic Health conditions or age>50 years old N=87	(12 months) Rearrest/Reconviction/ /reincarceration	No	No statistically significant differences between groups.
Duwe G. 2015	Quasi	2006-2008	Pre-release specialist helps to find work based of interest and skills / frequent follow-up after release	Reentering Adults with SMI N=464	(1 year) Rearrest/Reconviction/ Reincarceration/Revocation	Yes	Adjusted hazard ratio: Rearrest: 0.65; Reconviction: 0.68; Reincarceration: 0.45; Revocation: 0.37; p<0.05 for all
				Incarcerated Adults	(2-4 yrs)		

Table 3 (Continued)

Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Farabee et al. 2014	RCT*	2008-2010	STRIVE model – soft-skills “employment readiness” training & access to computer lab	N=217	Rearrest/Reincarceration	No	No statistically significant differences between groups for rearrest or reincarceration rates.
Hill L., et al. 2017	Quasi	2008-2012	300 hrs of vocational training, transition program, access to recruitment seminars, and earned certificate	Reentering Adults N=3792	(2 years) Rearrest/Reconviction/ reincarceration	Yes	Rearrest: 10.8% reduction; Reconviction: 13.4% reduction; Reincarceration: 10.9% reduction. P<0.01 for all
Northcutt et al. 2012	Quasi	1998-2005	Construction trade jobs during incarceration – paid small hourly wage, full-time work	N=448 Incarcerated Adults	(3 years) Rearrest/Reconviction/ reincarceration	No	No statistically significant differences between groups for any outcome
Schaeffer, et al. 2014	RCT	2007-2009	Community Restitution Apprentice-Focused Training; training/ placement in construction industry	N=97	(3-10 years) Rearrest	No	No statistically significant differences between groups for rearrest rates.
Uggen, et al. 2000	RCT	1975-77	National Support Work Demonstration: supervised employment in construction sector	Youth- SUD & criminal record N = 3,758	(30 months) Rearrest/Illegal earnings	Yes	Arrest: 12% reduction in self-reported arrest (p<.05) for sample older than 26;

Table 3 (Continued)

Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings	
Social Support	Braga et al. 2009	Quasi	2002	Boston Reentry Initiative: Intensive case-worker + mentor from faith-based org while in jail	Youth and adults with recent incarceration N=417	(3 years) Rearrest/Violent Rearrest	Yes	Illegal earnings: significant age x participation interaction in joint models. Rearrest: 31.1% reduction (p=0.003); Violent rearrest 33.8% reduction (p=0.04)
	Carney et al. 2003	RCT	(-)	Wraparound services teams provide individualized assessment	Incarcerated Adults N=141	(3 years) Rearrest/reincarceration	No	No statistically significant differences between groups for rearrest or reincarceration rates.
	Duwe G. 2012	RCT	2008	Minnesota Comprehensive Offender Reentry Plan: Case-management focused on connecting to already-existing services	Youth - criminal record N=269	(18 months) Rearrest/Reconviction/ /Reincarceration	Yes	Rearrest: 37% reduction; reconviction: 43% reduction; reincarceration: 57% reduction p<0.05 for all
	Veeh et al. 2017	Quasi	2006-2010	SVORI programs: in-prison programing and case management post-release	Reentering Adult N=934	(10-21 months) Reconviction/Reincarceration	Yes	Reconviction: 55% reduction (p<0.001); No difference in reincarceration
	Luallen et al. 2017	Quasi	1996	Ban on provision of SNAP or TANF benefits after drug felony conviction	Incarcerated Adult -	Reincarceration	No	The ban did not impact incarceration rates.

Table 3 (Continued)

Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Borduin et al. 1995	RCT	(-)	Multisystemic therapy – cognitive behavioral therapy + family and school support	N=176	Rearrest	Yes	4 yr fu: MST group had fewer arrests (M=1.57) than individual therapy (IT) group (M=4.41, $p < .002$); rearrest for MST group was significantly lower than IT at 14 yr fu (50% versus 81%, $p < .01$) and 22 yr fu (35% versus 55%, $p=.01$)
Sawyer and Borduin 2011 Timmons-Mitchell et al, 2010	RCT	1998-2001	Multisystemic therapy – cognitive behavioral therapy + family and school support	Youth with criminal record Multisystemic therapy – cognitive behavioral therapy + family and school support	(20+ years) Rearrest (18 months)	Yes	Rearrest in the treatment group 66% versus 86.7% in the control ($p<0.05$)
Borduin et al. 2009	RCT	1990	Multisystemic therapy – cognitive behavioral therapy + family and school support	N=48 Youth convicted of sex offense	Rearrest/Reincarceration	Yes	9 yr fu: MST participants had 83% fewer arrests for sexual crimes and 70% fewer for other crimes than usual community services control group (UCS) ($p < .001$); MST spent less time incarcerated than UCS (1,942.5 days versus 3,121.04, $p < .01$).

Table 3 (Continued)

Reference	Design	Year	Intervention	Sample	Outcome (Duration Follow-up)	Reduce CLI	Detailed CLI Findings
Letourneau et al. 2009	RCT	2004-2007	Multisystemic therapy – cognitive behavioral therapy + family and school support	N=124	Rearrest	No	No significant effect on rearrest likelihood
Letourneau et al. 2013 Lattimore et al. 2013	Quasi	2004-2005	12 SVORI-funded programs	Youth – sex offense N=1697	(2 years) Self-reported criminal behavior/ Rearrest/Reincarceration	Yes	Self-reported criminal behavior: 8.14% reduction (p=0.04). No difference in administrative outcomes.
Clark 2015	RCT	2011-2012	Case management with increased attention to social service delivery	Reentering Adults N=239	(3 years) Rearrest/Reconviction/ Reincarceration/Revocation	Yes	Revocation: 28.5% reduction; Reconviction: 42% reduction (p<0.05 for both). No difference in rearrest, reincarceration rates
Cook et al. 2015	RCT	2007	6 months programming w/ community coordinator at end of sentence	Incarcerated Adults N=236	(1-2years) Rearrest/Reincarceration	Yes	Rearrest: 30% reduction (p<0.01); reincarceration: no difference
Zhang et al. 2005	RCT	1999-2001	Repeat Offender Prevention Project – soft skills building and mental health/substance abuse programs	Incarcerated Adults Youth	(1 year) Rearrest/ Violation (2 years)	Yes	Rearrest: 9.8% reduction at 6 months, but NS at 18 months (p<0.05). No difference between group in rate of violations.

Table 3: Detailed Description of Interventions Evaluating Secondary Prevention of Incarceration

RCT = randomized controlled trial; Quasi = quasi-experimental design; CLI = criminal legal involvement.

INTERVENTIONS THAT REDUCED CRIMINAL LEGAL INVOLVEMENT: A LIFE CYCLE

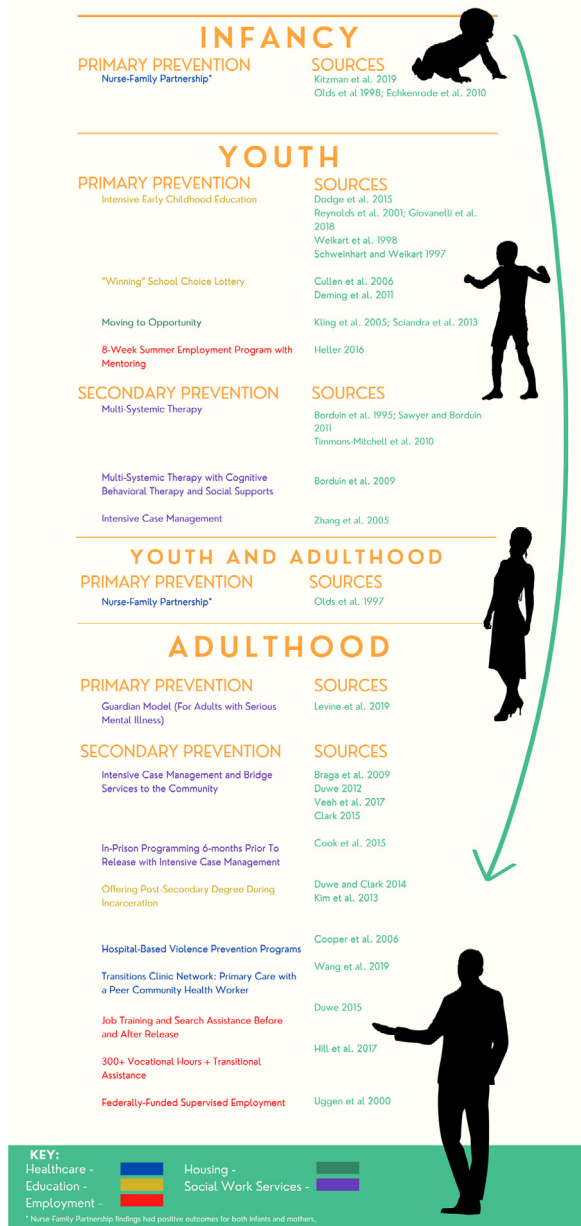


Figure 2. Reducing criminal legal involvement over the life course: a summary of effective interventions.

reviewed publications examined the impact of the interventions on criminal legal system outcomes at 4-7 years and 10 years post-randomization (additional working-papers did not meet our inclusion criteria).^{28,29} Notably, because the treatment arm required study participants

to move, these studies explore the effect of moving to a new neighborhood and not the impact of housing alone. Both publications found reductions in future interactions with the criminal legal system for children in the treatment arm, though with some notable nuances. The effects were strongest in the two years immediately after the intervention and more durable for violent crime outcomes relative to property crime. Stratified analyses found that while girls in the treatment arm experienced a one-third relative reduction in risk for arrest for violent and property crime ($p < 0.05$), boys experienced a non-significant decrease in arrest for violent crime and a 33% relative increase in property crime (both of marginal significance, $p < 0.10$).²⁸ The intervention effect attenuated with time, possibly because families later moved back to their original neighborhood.⁷¹

Secondary Prevention

We found more literature on interventions targeting secondary prevention of incarceration. Unlike intervention studies focused on primary prevention, those focused on secondary prevention of incarceration more often used a quasi-experimental design and were heterogeneous in their execution. Thus, below we discuss the types of interventions with the most robust evidence supporting their efficacy.

Post-secondary education for incarcerated students

Two studies which employed a quasi-experimental design using propensity score matching found that receipt of a post-secondary degree during incarceration led to fewer re-incarcerations. One study compared future criminal legal outcomes of 340 adults in New York State who received a one-year college certificate, associate degree, or bachelor's degree to 340 matched adults who were eligible to pursue a degree but did not participate in post-secondary education programs.³⁹ This study found a 53% reduction in rearrest rates 3 years from release (9% vs. 17%, $p < 0.001$).³⁹ A second study looked at nearly 700 adults in Minnesota who earned a post-secondary degree while incarcerated and matched them to a similar population who did not earn a post-secondary degree. Here, the treatment group experienced fewer reincarcerations for a new sentence; 14% to 18% in three years of follow-up, with an adjusted hazard ratio of 0.76 ($p < 0.001$) in Cox survival models.³⁸ Interestingly, neither this study nor another examining the effect of receiving high school diploma or GED established an effect on reduced future criminal legal involvement.⁴⁰ Authors speculated this may be because a high school diploma or GED alone is insufficient to overcome the stigma of a criminal record.

Vocational Training

Seven studies tested the effect of employment-based interventions on return to incarceration,⁴⁸⁻⁵⁴ three of which documented reductions in future criminal legal system contact.^{49,51,54} All successful interventions combined vocational training and individualized assistance in acquiring jobs.^{49,51,54} Two interventions operated both inside and outside of prison and aligned opportunities with the participant's interests and skillsets. EMPLOY, a Minnesota-based program, assisted individuals in finding employment while incarcerated and provided resource navigation for one-year post-release.⁴⁹ The study found that the 232 participants in the treatment group experienced reduced rearrest rates (42% versus 50%), reconviction rates (25% versus 31%), reincarceration rates (9% versus 14%), and revocation rates (21% versus 38%), compared with 232 participants in the propensity-score matched group who were eligible but did not receive EMPLOY services. A second study evaluated a program funded by a federal grant in Florida, the Workplace and Community Transition Training for Incarcerated Individuals (WCTTII). WCTTII provided 300 hours of vocational instruction to incarcerated participants followed by 100 hours of transitional programming and optional services upon reentry. The study found those who completed WCTTII were less likely to return to prison three years post-release compared to those who did not complete the program (66% versus 76.9% for any rearrest; 30.1% versus 43.5% for reconviction; and 29.6% versus 40.5% for reimprisonment; $p < 0.01$ for all). The final study tested the efficacy of the federally funded National Supported Work Demonstration Project by randomizing over 3,000 community-dwelling adults with an arrest history between 1975-77 to either referral for jobs in the construction or service industries versus no referral. This study found an age-varying effect of the intervention: those 26 years old or younger experienced no reduction in rearrest rates at three years (55% versus 54%, $p > 0.05$) but participants ages 27 years or greater experienced an 11% decrease ($p < 0.001$) in rearrest rates.⁵⁴ Other studies did not find any benefit of employment programs; one example was the STRIVE model, which provided soft-skills training and access to a computer lab after release but no connection to a job.⁵⁰

Navigation programs

Navigation programs which include case management services and peer support during incarceration and bridging to the community have also been shown to reduce rates of return to jail.^{55,57,58,66} Many of the identified studies were funded by the federal Serious Violent Offender Reentry Initiative (SVORI); we only considered those programs which funded community-based entities. One study evaluated the efficacy of the Boston Reentry Initiative, which assigned individuals aged 18-

32 deemed a high risk for committing a future violent crime incarcerated in Boston's large county jail to an intensive caseworker, as well as a community, faith-based mentor. The study included 108 individuals who participated in the program and a propensity score-matched group of 309 people released in the year prior to the intervention's start. Re-arrest rates at three years were high in both groups, but lower in the treatment group (77.8% versus 87.7%, $p < 0.01$). The reduction was greater for violent crime re-arrest at three years (27.8% versus 39.2%, $p < 0.05$).⁵⁵ Three additional studies, all evaluating SVORI-funded programs which provided broad case management services, were shown to be effective.^{57,58,66} However, one study synthesizing results from multiple additional SVORI programs found only a small drop in future criminal legal system involvement.⁶⁵ Important intervention components across all studies included a low caseload for caseworkers (20-30 clients per 1.0 FTE), services starting in prison and bridged to the community, and a target population of individuals who had committed violent crimes.^{57,58,66,67}

Healthcare Interventions

We identified two interventions within the healthcare domain which studied re-incarceration outcomes.^{43,47} First, the Transitions Clinic Network (TCN) is a national consortium of primary-care programs which employs community health workers with prior criminal legal system involvement to support those returning from incarceration.⁷² We acknowledge that several authors are directly involved with the design and study of TCN programming. Two experimental studies have been published examining the impact of the TCN model on healthcare and criminal legal system involvement. An RCT of 200 reentering adults in San Francisco, CA, found that TCN program participation reduced emergency department use but did not impact arrest rates (58% versus 53%, $p = 0.46$) twelve months after enrollment.⁷³ A subsequent study of 188 reentering adults in New Haven, CT, concluded that those receiving TCN services experienced fewer days incarcerated (101.4 versus 187.4, $p < 0.0001$) and fewer probation and parole violations (17% versus 33%, $p < 0.05$) compared to propensity-matched group in the 12 months following release,⁴⁷ but, similar to the California study, no difference in arrest rates. The authors speculate that after incarceration a primary care intervention likely will not affect arrest rates which are highly dependent on neighborhood policing patterns.

Hospital-based violence programs have also been studied as intervention points for primary and secondary prevention of criminal legal system involvement.^{34,43} One study examined the effect of intensive case management and resources to address social needs for hospitalized people who presented with

violent injury and were on parole. Of 100 individuals randomized to participation, those in the control group experienced increased odds of violent arrest (OR 3.2, $p < 0.001$), any crime conviction (OR 2.3, $p < 0.001$) and violent crime conviction (OR 4.4, $p < 0.001$) compared to individuals in the treatment arm.⁴³ A study examining a similar intervention found that the program had no impact for primary prevention of incarceration; the authors hypothesized this may be due to the low enrollment numbers when the study lost funding.⁴⁶

Ineffective programs for secondary prevention of incarceration

We identified studies across domains which did not affect future criminal legal outcomes, specifically in education (N=2),^{38,40} housing (N=2),^{41,42} healthcare (N=2),⁴⁵ employment (N=4)^{48,50,52,53}, and social support (N=3).^{56,59,64} Unsuccessful interventions for three domains (education, employment, and social support) suggested that the dose of the intervention matters; a comprehensive, well-resourced intervention which provides access to future material needs for well-being is more likely to prevent future criminal legal contact. For education, as mentioned above, the receipt of GED while incarcerated did not confer the same protection against repeat system involvement as a post-secondary degree. This suggests that secondary education is a necessary but insufficient potentiating step in creating a stable pathway post-release. Common themes in unsuccessful employment and social support interventions included not considering the participants' strengths or interests, starting in the community (as opposed to during incarceration) or offering employment opportunities limited to only low-skill, minimum wage work.^{48,50,52,54} One study examined a policy which banned those convicted of a drug felony from receiving food stamp or welfare benefits; the ban did not deter return to prison.⁵⁹

For housing and healthcare, the takeaways from ineffective interventions were more nuanced. One study found that releasing individuals without stable housing to the community with a housing voucher (versus standard practice to keep them incarcerated) showed no effect on recidivism rates. Another pilot study providing housing vouchers to 30 individuals upon release was designed to test for feasibility not efficacy. The intervention was shown to be feasible and promising; in the year following release, there were only 2 arrests among those who were randomized to a housing voucher, and 9 among those who did not. Despite these encouraging results, a larger trial was not completed. Finally, a study from Washington state which examined the effect of an expedited referral to Medicaid and linkage to care for those with serious mental illness found the treatment group had increased rates of recidivism at 12 months (55% versus 46%, $p < 0.01$), mostly explained by technical violations. The authors posit that increased contact

with community supervision agents in the treatment arm increased risk of return to incarceration.^{44,45}

Discussion

Despite growing interest in mass decarceration, we found only 53 publications over the span of three decades which experimentally or quasi-experimentally study the impact of interventions in the “thick safety net” to strengthen community resources that prevent incarceration. Nonetheless, our review identifies several evidence-based interventions which provide pathways to support decarceration and community health. Perhaps most strongly supported is investment in the early life course – programs targeting families, especially pregnant women, mothers, and early childhood. The High/Scope Interventions and the Nurse-Family Partnership indicate enduring societal impacts, including prevention of incarceration and support the need for deeper investments in intergenerational interventions to decarcerate. These findings suggest that new federal policies which provide basic income to families with children and enhance childcare support may impact long-term incarceration rates and should be rigorously studied.

Further, there are evidence-based interventions in the domains of education, housing, employment, healthcare, and social support programs which can catalyze decarceration and have not been widely scaled. For instance, three healthcare interventions identified in this review – Nurse-Family Partnership, the Transitions Clinic Network, and hospital-based violence reduction programs—show evidence of reducing criminal legal system contact but have not been systematically scaled, in part, due to barriers funding non-physician labor in the health sector. In most states, public health insurance, especially Medicaid, does not cover services that fall outside of traditional clinical services, though this is slowly changing.⁷⁴ Several states now reimburse community health worker services, the center point of the Transitions Clinic Network model, through Medicaid.⁷⁵ Also, the Michigan-based Maternal and Infant Health Program, similar in design to the Nursing Family Partnership, is funded by Medicaid and is a home-visiting service available to all Medicaid-eligible pregnant women in the state.⁷⁶

We identified successful interventions which had been eliminated altogether, despite a strong base of evidence. A federal law passed in 1994 withdrew Pell grant accessibility for incarcerated individuals, reducing the number of college programs within prisons in our country from 772 in 1990 to eight in 1997.⁷⁷ Recent legislative changes, which returned the right of incarcerated individuals to receive Pell grants, have the potential to drastically improve their access to college education. If college programs are scaled to match the demand, this has potential to substantially impact the success of students after release.

Our review also identified pitfalls to research on decarceration and specifically the lack of institutional investment in this work.⁷⁸ While state and federal governments funded more than half of the studies included in this review (N=27), the majority included less than five years of follow-up, even though many of the interventions' benefits may be realized decades after implementation. This is exemplified by the MOVE program pilot study, which demonstrated the feasibility of providing housing on release from prison. Despite encouraging results, a larger intervention trial has not materialized due to lack of funding.⁴² Our review also found too few community-level experimental evaluations of interventions. Researchers should prioritize pragmatic trials, cluster RCTs, and implementation research to generate high-quality evidence to guide ongoing decarceration efforts. This may require larger investments from state and federal funding agencies, prioritizing long-term studies with the capacity to examine both the prolonged and intergenerational impact of interventions.

Limitations

Our review has several limitations. There are notable exclusions to our review because we limited our inclusion criteria to peer-reviewed papers and those of experimental or quasi-experimental design to strengthen causal inference in our findings. We note that prior work has evaluated recidivism reduction, especially employment and education,^{79,80} but our study is unique due to its focus on community-based investments and exclusion of observational studies. An entire field of research is devoted to the *risk-needs-responsivity* model of correctional programming⁸¹, which was not included here because this model centers on correctional programming, not community resources. Additionally, several non-peer reviewed economic working papers^{82,83} and one paper published after our search⁸⁴ evaluated the role of federal economic policies were not included in our review. These papers support the implementation of the Earned Income Tax Credit and the expansion of Medicaid under the Affordable Care Act as crime-reducing measures.^{82,84} We do not suggest that such publications are inferior to those included, just that their effects have not undergone the peer-review process.

Further, our protocol only included studies that examined the individual-level outcome of criminal legal system involvement. As such, we did not include studies which evaluated levels of neighborhood crime, which has been reviewed in two recent articles.^{85,86} One explored neighborhood-level interventions shown to reduce violence and emphasized the positive effect of neighborhood greening of vacant lots,⁸⁶ and a second examined the violence interruption model, Cure Violence, which has been replicated and demonstrates a

violence-reducing effect.⁸⁵ We consider these reviews as complements to our study. Finally, we identified few primary prevention studies which did not demonstrate impact^{25,34,36} suggesting publication bias, which undermines our ability to assess unsuccessful interventions.

Conclusion

Our review identified and synthesized experimental evidence for strategies to mass decarceration beyond reform of criminal legal policy which center on community health and wellbeing. We identified promising interventions across a number of domains which have not been implemented to scale, documented a conspicuous paucity of rigorous studies to date, and noted the limitations of short-term funding structures for research. The studies in this review further show that among successful interventions, reduced criminal legal system involvement was often a secondary benefit to other favorable outcomes, including improved mental and physical health, higher academic achievement, employment and stable housing, suggesting that decarceration and community health are intertwined.

Contributors

L. Hawks, E. Lopoo, L.B. Puglisi, and E.A. Wang originated and conceptualized the study and analyzed the data. L. Hawks, E. Lopoo, L. Puglisi, and E.A. Wang, and J. Cellini developed the study protocol. J. Cellini conducted the library search. L. Hawks, E. Lopoo, K. Thompson K, A.A. Halberstam AA, D. Tolliver, and S. Martinez-Hamilton assisted in collecting and extracting the data. All authors contributed to the drafting of the article.

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Declaration of interests

The authors have no competing interests to disclose.

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