

Method

Measures

Data source and study period

Data were drawn from the National Crime Victimization Survey (NCVS), survey years 2014–2022. The NCVS is a nationally representative, stratified multistage household survey administered by the U.S. Census Bureau for the Bureau of Justice Statistics (Bureau of Justice Statistics, 2024).

Unit of analysis and analytic samples

The unit of analysis was the victimization incident. We examined three incident scopes: Total (all incidents), Theft (property crime), and Violent (nonfatal personal crime).

Social context of the incident (primary definition)

We operationalized incident social context in two steps. First, we defined a three-level measure of incident social context: (a) Solo/Alone (a single offender and no evidence the offense was observed by others), (b) Co-offense/Group (multiple offenders participated), and (c) Observed (a single offender, but the incident was observed by someone else). Second, for the primary analyses we derived a binary indicator of Social context, coding incidents as Social = Co-offense/Group or Observed, versus Solo/Alone. This primary binary captures both co-offending and offenses committed in the presence of others.

Sensitivity analysis (co-offending-only; conventional operationalization)

Because the substantive interpretation of observed incidents may differ from co-offending, we conducted a secondary analysis using a conventional operationalization of social

offending that excludes observed incidents. For this sensitivity analysis, Social context was defined as Co-offense/Group versus Solo/Alone (Observed incidents omitted).

Robustness check (unweighted models). As a robustness check, we repeated the primary Total-scope models without NCVS survey weights. Results are reported in the Supplement (Tables S5–S6).

Offender age was coded from NCVS age-group data. For solo incidents, we used the offender’s age group. For co-offending incidents, we used youngest and oldest co-offender age groups; when only one value was available, it was applied to both fields. Among co-offending incidents with valid age codes, 87.0% (survey-weighted) had offenders in the same or adjacent age bracket; 13.0% spanned two or more brackets.

	C	A	W	S	C	O	So	S	C	O	S
	rim	ge	eighted	olo/	o-	bser	cial	olo/	o-	bser	ocia
	e	gro	N (total)	Alon	offense/	ved	(Group+Obs	Alon	offense/	ved	1 %
	type	up		e N	Group N	N	erved) N	e %	Group	%	
								%			
	T	U	2	9	6	3	10	4	3	1	4
heft	nde	10102	4652	3800	785	1655		5.1	0.4	8	8.4
	r					5					
	12										
	T	1	4	1	1	1	26	4	3	2	5
heft	2–	65649	9132	42773	177	0541		1.1	0.7	5.3	6
	14		3			67					
	T	1	8	3	2	1	42	4	3	2	5
heft	5–	03566	4781	65869	623	8187		3.3	3.1	0.2	3.3
	17		1			18					
	T	1	9	4	3	1	49	4	3	1	5

	C	A	W	S	C	O	So	S	C	O	S
rim	ge	ighted	olo/	o-	bser	cial		olo/	o-	bser	ocia
e	gro	N (total)	Alon	offense/	ved	(Group+Obs	Alon	offense/	ved	1 %	
type	up		e N	Group N	N	erved) N	e %	Group	%		
								%			
heft	8-	64149	2680	07599	919	9534		4.3	1.9	9.9	1.8
	20		1		34						
	T	2	2	1	6	6	13	5	2	2	4
heft	1-	928890	4871	78412	543	32797		0.8	3.2	2.3	5.5
	29		40		85						
	T	3	4	2	7	9	16	5	1	2	3
heft	0+	332626	5487	30038	236	53724		8.8	6.8	1.3	8.2
			57		86						
	T	U	7	3	2	1	39	4	2	2	5
otal	nde	73249	6116	08788	895	8293		6.7	7	4.5	1.5
	r		0		05						
	12										
	T	1	2	1	6	8	15	4	2	3	5
otal	2-	733752	1601	71277	707	41978		2.4	4.6	1.9	6.4
	14		09		01						
	T	1	3	1	9	7	17	4	3	2	5
otal	5-	094232	3078	97387	551	52569		2.3	2.2	4.4	6.6
	17		21		82						
	T	1	3	1	1	6	17	4	3	2	5
otal	8-	285838	5063	075954	609	36884		5.8	2.7	0.1	2.9
	20		92		30						
	T	2	1	6	2	2	45	5	2	2	4
otal	1-	0716283	0717	236077	282	18144		6.7	0.9	1.3	2.2

	Crim	Age	Weighted	White/Black	Sex	Offense/Group	Observed	Expected	Standardized	Observed	Expected	Standardized
	type	group	N (total)	Alone N	Group N	Offense/Group	Observed N	Expected N	Standardized %	Observed %	Expected %	Standardized %
			29	22			067					
	T	3	2	1		2	4	72	6	1	2	3
total	0+	0839569	3392	492521		803	96204		4.3	2	3.1	5
			373			683						
	V	U	5	2		1	1	29	4	2	2	5
iole	nde	63147	6650	44988		516	6638		7.3	5.7	6.9	2.7
nt	r		9			50						
			12									
	V	1	2	9		5	7	12	4	2	3	5
iole	2-	268103	6878	28503		529	81437		2.7	3.3	3.2	6.5
nt	14		6			33						
	V	1	2	9		7	5	13	4	3	2	5
iole	5-	290666	6001	31518		928	24381		1.9	1.9	5.9	7.8
nt	17		0			64						
	V	1	2	1		7	4	12	4	3	2	5
iole	8-	321689	0795	68354		689	37350		6.5	3.1	0.2	3.3
nt	20		91			96						
	V	2	7	4		1	1	31	5	2	2	4
iole	1-	787392	5845	557665		627	85347		8.9	0	0.9	0.9
nt	29		82			682						
	V	3	1	1		1	3	56	6	1	2	3
iole	0+	6506943	0843	762483		879	42479		5.7	0.7	3.5	4.2
nt			616			997						

[illegible]

	Crim	Age	Weighted	White/Black	Sex	Offense/Group	Control	Observed	So	Control	Observed	Social
	type	group	N (total)	Alone N	Group N	N	(Group+Observed) N	Alone %	Group %	Alone %	Group %	1 %
		15		21		64		1		0		T
-17		-29		.1								total
		15		30		13		1		0		T
-17		+		7.539								total
		18		21		56		1		0		T
-20		-29		.0								total
		18		30		14		1		0		T
-20		+		2.614								total
		21		30		55		1		0		T
-29		+		.9								total
		U		12		2.		1		0.		T
nder 12		-14		4				1				heft
		U		15		1.		1		0.		T
nder 12		-17		1				3				heft
		U		18		0.		1		0.		T
nder 12		-20		6				4				heft
		U		21		0.		1		0.		T
nder 12		-29		5				5				heft
		U		30		7.		1		0.		T
nder 12		+		3				0		1		heft
		12		15		0.		1		0.		T
-14		-17		6				5				heft
		12		18		1.		1		0.		T

	Crim	Age	Weighted	Sex	Offense	Control	Observed	So	Sex	Offense	Control	Observed
	type	group	N (total)	Alone	offense/Group	N	(Group+Observed)	N	Alone	offense/Group	%	1 %
-14		-20	4				2					heft
		12	21		11		1		8e	0.		T
-14		-29	.7				-04		0			heft
		12	30		35		1		0	0		T
-14		+	.3									heft
		15	18		0.		1		0.	1		T
-17		-20	2				6					heft
		15	21		8.		1		0.	0.		T
-17		-29	1				0		1			heft
		15	30		28		1		0	0		T
-17		+	.0									heft
		18	21		7.		1		0.	0.		T
-20		-29	9				0		1			heft
		18	30		44		1		0	0		T
-20		+	.1									heft
		21	30		23		1		0	0		T
-29		+	.9									heft
		U	12		0.		1		0.	1		Vi
nder 12		-14	9				3					olent
		U	15		1.		1		0.	1		Vi
nder 12		-17	3				2					olent

	C	A	W	S	C	O	So	S	C	O	S
rim	ge	ighted	olo/	o-	bser	cial		olo/	o-	bser	ocia
e	gro	N (total)	Alon	offense/	ved	(Group+Obs	Alon	offense/	ved	l %	
type	up		e N	Group N	N	erved) N	e %	Group	%		
								%			
	U		18		0.	1	0.		1		Vi
nder 12	-20		0			9			olent		
	U		21		7.	1	0.		0.		Vi
nder 12	-29		1			0		1		olent	
	U		30		20	1	0		2e		Vi
nder 12	+		.8					-04		olent	
	12		15		0.	1	0.		1		Vi
-14	-17		2			7				olent	
	12		18		0.	1	0.		1		Vi
-14	-20		8			4				olent	
	12		21		27	1	0		0		Vi
-14	-29		.4							olent	
	12		30		77	1	0		0		Vi
-14	+		.3							olent	
	15		18		2.	1	0.		1		Vi
-17	-20		9			1				olent	
	15		21		51	1	0		0		Vi
-17	-29		.5							olent	
	15		30		10	1	0		0		Vi
-17	+		5.527							olent	
	18		21		43	1	0		0		Vi
-20	-29		.7							olent	
	18		30		97	1	0		0		Vi

	C	A	W	S	C	O	So	S	C	O	S
rim	ge	eighted	olo/	o-	bser	cial		olo/	o-	bser	ocia
e	gro	N (total)	Alon	offense/	ved	(Group+Obs	Alon	offense/	ved	l %	
type	up		e N	Group N	N	erved) N	e %	Group	%		
								%			
-14	+		5.014						otal		
	15		18	0.		1	0.		1		T
-17	-20		5			5			otal		
	15		21	73		1	0		0		T
-17	-29		.8						otal		
	15		30	25		1	0		0		T
-17	+		3.018						otal		
	18		21	82		1	0		0		T
-20	-29		.5						otal		
	18		30	38		1	0		0		T
-20	+		9.681						otal		
	21		30	16		1	0		0		T
-29	+		2.962						otal		
	U		12	0.		1	0.		1		T
nder 12	-14		2			7			heft		
	U		15	0.		1	0.		1		T
nder 12	-17		3			6			heft		
	U		18	0.		1	0.		1		T
nder 12	-20		1			8			heft		
	U		21	3.		1	0.		0.		T
nder 12	-29		7			1	9		heft		

	Crim	Age	Weighted N (total)	Sex/ Alone N	Offense/ Group N	Observed N	Expected (Group+Observed) N	Standardized Residual %	Offense/ Group %	Observed %	Expected % (1%)
Under 12	U	+	30	.1	19	1	0	3e	T		
-14	12	-17	15	0	9	1	0.	1	T		
-14	12	-20	18	0.	8	1	0.	1	T		
-14	12	-29	21	12	1	6e	0.	0.	T		
-14	12	-29	30	51	1	0	0	0	T		
-17	15	-20	18	0.	6	1	0.	1	T		
-17	15	-29	21	20	1	0	0	2e	T		
-17	15	-29	30	76	1	0	0	0	T		
-20	18	-29	21	16	1	1e	9e		T		
-20	18	+	30	82	1	0	0	0	T		
-29	21	+	30	43	1	0	0	0	T		
	U		12	0	1	1.	1	1	Vi		

	C	A	W	S	C	O	So	S	C	O	S
rim	ge	ighted	olo/	o-	bser	cial		olo/	o-	bser	ocia
e	gro	N (total)	Alon	offense/	ved	(Group+Obs	Alon	offense/	ved	l %	
type	up		e N	Group N	N	erved) N	e %	Group	%		
								%			
nder 12		-14				0			olent		
	U		15	3.		1	0.	1.		Vi	
nder 12		-17	5			1	0		olent		
	U		18	2.		1	0.	1		Vi	
nder 12		-20	4			1			olent		
	U		21	7.		1	0.	0.		Vi	
nder 12		-29	4			0	1		olent		
	U		30	55		1	0	0		Vi	
nder 12	+		.0						olent		
	12		15	5.		1	0.	0.		Vi	
-14		-17	7			0	3		olent		
	12		18	3.		1	0.	0.		Vi	
-14		-20	9			0	7		olent		
	12		21	12		1	7e	0.		Vi	
-14		-29	.0			-04	0		olent		
	12		30	10		1	0	0		Vi	
-14	+		0.678						olent		
	15		18	0.		1	0.	1		Vi	
-17		-20	3			6			olent		
	15		21	53		1	0	0		Vi	
-17		-29	.1						olent		

	Crim	Age group	Weighted N (total)	Solo/Alone N	Co-offense/Group N	Controlled N	Social (Group+Observed) N	Solo/Alone %	Co-offense/Group %	Controlled %	Violent %
-17		15	+	30	8.445	17	1	0	0		Violent
-20		18	-29	21	.1	79	1	0	0		Violent
-20		18	+	30	5.679	27	1	0	0		Violent
-29		21	+	30	9.147	10	1	0	0		Violent
	Crime type				Age group		OR			95% CI	
	Total				Under 12		0.8			[0.61, 1.09]	
	Total				12-14		1.0			[0.78, 1.26]	
	Total				18-20		0.9			[0.73, 1.01]	
	Total				21-29		0.6			[0.48, 0.64]	
	Total				30+		0.4			[0.35, 0.48]	
	Theft				Under 12		0.8			[0.56, 1.20]	
	Theft				12-14		1.1			[0.84, 1.48]	
	Theft				18-20		0.9			[0.74, 1.19]	
	Theft				21-29		0.7			[0.59, 0.91]	
	Theft				30+		0.5			[0.43, 0.68]	
	Violent				Under 12		0.8			[0.57, 1.15]	
	Violent				12-14		0.9			[0.72, 1.25]	
	Violent				18-20		0.8			[0.67, 1.03]	

Crime type	Age group	Weighted N (total)	Weighted N	Observed N	Observed %	Expected N	Expected %	OR	95% CI
Violent			21-29		0.5				[0.42, 0.61]
Violent			30+		0.4				[0.31, 0.46]
Crime type			Age group		OR				95% CI
Total			Under 12		0.9				[0.70, 1.27]
Total			12-14		1.1				[0.91, 1.46]
Total			15-17		1.2				[0.99, 1.37]
Total			21-29		0.7				[0.58, 0.73]
Total			30+		0.5				[0.42, 0.54]
Theft			Under 12		0.9				[0.61, 1.25]
Theft			12-14		1.2				[0.89, 1.56]
Theft			15-17		1.1				[0.84, 1.34]
Theft			21-29		0.8				[0.65, 0.93]
Theft			30+		0.6				[0.49, 0.68]
Violent			Under 12		1.0				[0.68, 1.39]
Violent			12-14		1.1				[0.86, 1.50]
Violent			15-17		1.2				[0.97, 1.48]
Violent			21-29		0.6				[0.52, 0.71]
Violent			30+		0.5				[0.39, 0.53]
Age group					OR				95% CI
Under 12					0.6				[0.44, 0.70]
12-14					0.9				[0.76, 1.06]
18-20					0.8				[0.64, 0.87]

Crime type	Age group	Weighted N (total)	Solo/offense/Group N	Solo/offense/Group N	Observed N	Social (Group+Observed) N	Solo/offense/Group %	Solo/offense/Group %	Observed %	Social %
	21-29				0.5				[0.44, 0.57]	
	30+				0.4				[0.33, 0.42]	
	Age group				OR				95% CI	
	Under 12				0.6				[0.43, 0.74]	
	12-14				0.7				[0.59, 0.88]	
	18-20				0.8				[0.67, 0.95]	
	21-29				0.4				[0.35, 0.46]	
	30+				0.2				[0.17, 0.23]	

Results

Model-implied predicted probabilities of social context (co-offending or observed offending vs. solo offending) across age groups are presented in Table 1 and depicted in Figure 1. Across all offense types, the likelihood of offending in a social context followed a consistent developmental pattern: social offending was most prevalent during adolescence, peaked between ages 12 and 17, and declined monotonically into adulthood. Adults aged 30 and older were the least likely to offend in social contexts. Emerging adults (ages 18–20) and young adults (ages 21–29) occupied intermediate positions, with predicted probabilities falling between those of adolescents and older adults.

Total offenses. For total offenses, the predicted probability of social context was highest among 15- to 17-year-olds ($\hat{p} = .573$, 95% CI [.534, .610]) and 12- to 14-year-olds ($\hat{p} = .571$

[.509, .631]), followed closely by 18- to 20-year-olds ($\hat{p} = .536$ [.509, .562]) and children under 12 ($\hat{p} = .524$ [.447, .600]). By contrast, adults aged 30 and older had a predicted probability of .353 [.326, .380]. In the weighted logistic regression model (see Figure 2), all younger age groups had significantly elevated odds of social offending relative to adults aged 30 and older: adolescents aged 15–17 (OR = 2.46, 95% CI [2.11, 2.87]) and 12–14 (OR = 2.44 [2.05, 2.91]) showed the largest effects, followed by emerging adults aged 18–20 (OR = 2.12 [1.87, 2.40]), children under 12 (OR = 2.02 [1.57, 2.61]), and young adults aged 21–29 (OR = 1.37 [1.26, 1.48]).

Theft offenses. A similar pattern emerged for theft, though the age gradient was somewhat attenuated. Social context was most likely among 12- to 14-year-olds ($\hat{p} = .577$ [.520, .632]) and 15- to 17-year-olds ($\hat{p} = .552$ [.503, .600]), with adults aged 30 and older again showing the lowest probability ($\hat{p} = .394$ [.371, .416]). Relative to the 30-and-older reference group, adolescents aged 12–14 had the highest odds (OR = 2.10 [1.63, 2.70]), followed by 15- to 17-year-olds (OR = 1.90 [1.50, 2.41]), 18- to 20-year-olds (OR = 1.80 [1.52, 2.14]), children under 12 (OR = 1.66 [1.19, 2.30]), and 21- to 29-year-olds (OR = 1.38 [1.22, 1.56]).

Violent offenses. The developmental pattern was most pronounced for violent offenses. Adolescents aged 15–17 had the highest predicted probability of social context ($\hat{p} = .580$ [.529, .629]), followed by 12- to 14-year-olds ($\hat{p} = .569$ [.496, .640]) and emerging adults aged 18–20 ($\hat{p} = .534$ [.498, .569]). Adults aged 30 and older had the lowest probability ($\hat{p} = .342$ [.311, .375]). Odds ratios relative to the 30-and-older group were largest for 15- to 17-year-olds (OR = 2.65 [2.20, 3.20]) and 12- to 14-year-olds (OR = 2.54 [2.07, 3.12]), with emerging adults (OR = 2.20 [1.88, 2.59]) and children under 12 (OR = 2.14 [1.58, 2.90]) also showing substantially

elevated odds. Young adults aged 21–29, while significantly more likely than older adults to offend socially (OR = 1.34 [1.22, 1.46]), were clearly distinguished from the adolescent peak.

Bonferroni-adjusted pairwise age-group comparisons are reported as corroborative analyses in the Supplement (Tables S1–S3 for the primary definition; Tables S4–S6 for the co-offending-only definition).

Tables and figures

Table 1

Weighted distribution of incident social context by age group and crime type (primary definition: Solo, Co-offense, Observed; Social = Co-offense + Observed).

Total					
Age group	Solo	Co-offense	Observed	Social	Total
<12	361160 (47.6%)	208788 (27.5%)	189505 (25.0%)	398293 (52.4%)	759453 (100.0%)
12–14	116010 9 (42.9%)	671277 (24.8%)	870701 (32.2%)	154197 8 (57.1%)	270208 7 (100.0%)
15–17	130782 1 (42.7%)	997387 (32.6%)	755182 (24.7%)	175256 9 (57.3%)	306039 0 (100.0%)
18–20	150639 2 (46.4%)	107595 4 (33.2%)	660930 (20.4%)	173688 4 (53.6%)	324327 6 (100.0%)
21–29	607172 2 (57.3%)	223607 7 (21.1%)	228206 7 (21.5%)	451814 4 (42.7%)	105898 66 (100.0%)
30+	133923 73 (64.7%)	249252 1 (12.0%)	480368 3 (23.2%)	729620 4 (35.3%)	206885 77 (100.0%)

Note. Ns and percentages are survey-weighted.

Theft

Age group	Solo	Co- offense	Observ ed	Social	Total
<12	94652 (48.2%)	63800 (32.5%)	37855 (19.3%)	101655 (51.8%)	196307 (100.0%)
12–14	191323 (42.3%)	142773 (31.6%)	117767 (26.1%)	260541 (57.7%)	451863 (100.0%)
15–17	347811 (44.8%)	265869 (34.3%)	162318 (20.9%)	428187 (55.2%)	775998 (100.0%)
18–20	426801 (46.1%)	307599 (33.2%)	191934 (20.7%)	499534 (53.9%)	926334 (100.0%)
21–29	148714 0 (52.7%)	678412 (24.1%)	654385 (23.2%)	133279 7 (47.3%)	281993 7 (100.0%)
30+	254875 7 (60.6%)	730038 (17.4%)	923686 (22.0%)	165372 4 (39.4%)	420248 1 (100.0%)

Note. Ns and percentages are survey-weighted.

Violent

Age group	Solo	Co- offense	Observ ed	Social	Total
<12	266509 (47.3%)	144988 (25.7%)	151650 (26.9%)	296638 (52.7%)	563147 (100.0%)
12–14	968786 (43.1%)	528503 (23.5%)	752933 (33.5%)	128143 7 (56.9%)	225022 2 (100.0%)
15–17	960010 (42.0%)	731518 (32.0%)	592864 (26.0%)	132438 1 (58.0%)	228439 2 (100.0%)
18–20	107959 1 (46.6%)	768354 (33.2%)	468996 (20.2%)	123735 0 (53.4%)	231694 1 (100.0%)
21–29	458458	155766	162768	318534	776992

	2 (59.0%)	5 (20.0%)	2 (20.9%)	7 (41.0%)	9 (100.0%)
30+	108436	176248	387999	564247	164860
	16 (65.8%)	3 (10.7%)	7 (23.5%)	9 (34.2%)	96 (100.0%)

Note. Ns and percentages are survey-weighted.

Figures

Figure 1. Predicted probability of social context (co-offense + observed) by age group, with 95% confidence intervals.

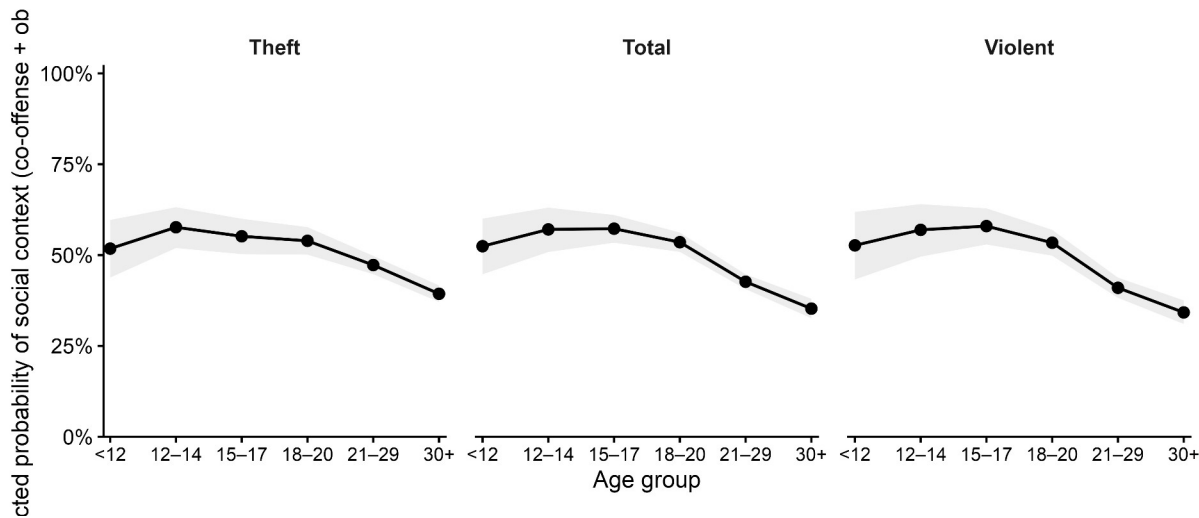
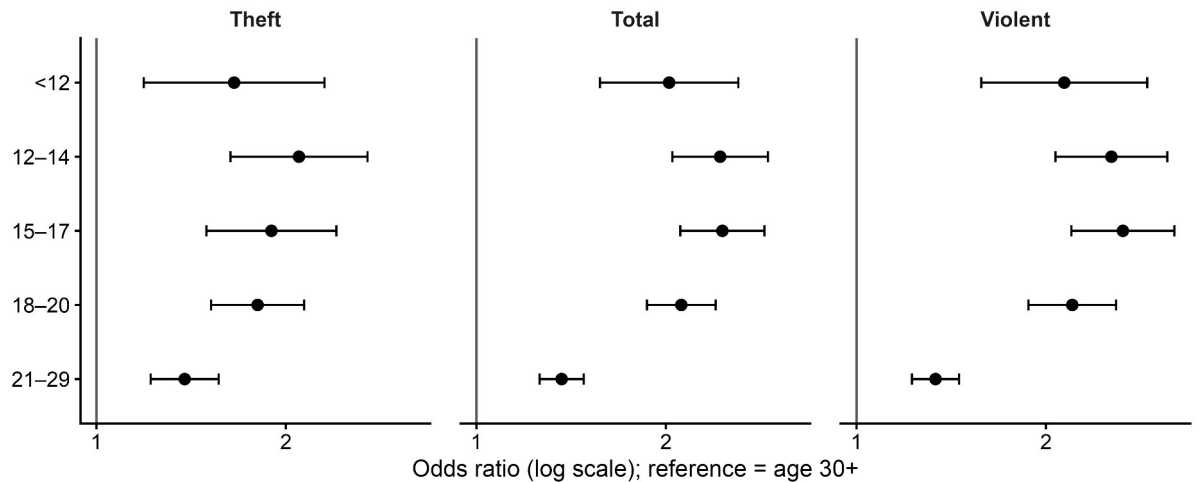


Figure 2. Odds ratios from weighted logistic regression predicting social context (reference = age 30+), with 95% confidence intervals.



Supplement

A. Weighted primary definition (social = co-offense + observed): Bonferroni pairwise comparisons

Total		
Contrast	OR [95% CI]	Bonferroni p
(30+) - under_12	0.49 [0.34, 0.72]	< .001
(30+) - (12-14)	0.41 [0.32, 0.53]	< .001
(30+) - (15-17)	0.41 [0.32, 0.51]	< .001
(30+) - (18-20)	0.47 [0.39, 0.57]	< .001
(30+) - (21-29)	0.73 [0.65, 0.83]	< .001
under_12 - (12-14)	0.83 [0.57, 1.21]	= 1.000
under_12 - (15-17)	0.82 [0.53, 1.27]	= 1.000
under_12 - (18-20)	0.96 [0.62, 1.48]	= 1.000
under_12 - (21-29)	1.48 [0.98, 2.23]	= .073
(12-14) - (15-17)	0.99 [0.69, 1.42]	= 1.000
(12-14) - (18-20)	1.15 [0.81, 1.64]	= 1.000
(12-14) - (21-29)	1.79 [1.31, 2.44]	< .001
(15-17) - (18-20)	1.16 [0.91, 1.49]	= 1.000
(15-17) - (21-29)	1.80 [1.45, 2.24]	< .001
(18-20) - (21-29)	1.55 [1.30, 1.84]	< .001
Theft		
Contrast	OR [95% CI]	Bonferroni p
(30+) - under_12	0.60 [0.37, 0.99]	= .039
(30+) - (12-14)	0.48 [0.33, 0.69]	< .001
(30+) - (15-17)	0.53 [0.37, 0.75]	< .001
(30+) - (18-20)	0.55 [0.43, 0.71]	< .001

(30+) - (21-29)	0.72 [0.60, 0.87]	< .001
under_12 - (12-14)	0.79 [0.43, 1.45]	= 1.000
under_12 - (15-17)	0.87 [0.48, 1.59]	= 1.000
under_12 - (18-20)	0.92 [0.53, 1.60]	= 1.000
under_12 - (21-29)	1.20 [0.72, 2.00]	= 1.000
(12-14) - (15-17)	1.11 [0.72, 1.71]	= 1.000
(12-14) - (18-20)	1.16 [0.76, 1.77]	= 1.000
(12-14) - (21-29)	1.52 [1.05, 2.20]	= .013
(15-17) - (18-20)	1.05 [0.73, 1.51]	= 1.000
(15-17) - (21-29)	1.37 [0.98, 1.92]	= .082
(18-20) - (21-29)	1.31 [0.99, 1.72]	= .069

Violent		
Contrast	OR [95% CI]	Bonferroni p
(30+) - under_12	0.47 [0.30, 0.73]	< .001
(30+) - (12-14)	0.39 [0.29, 0.53]	< .001
(30+) - (15-17)	0.38 [0.29, 0.50]	< .001
(30+) - (18-20)	0.45 [0.36, 0.58]	< .001
(30+) - (21-29)	0.75 [0.66, 0.85]	< .001
under_12 - (12-14)	0.84 [0.53, 1.33]	= 1.000
under_12 - (15-17)	0.81 [0.48, 1.36]	= 1.000
under_12 - (18-20)	0.97 [0.57, 1.65]	= 1.000
under_12 - (21-29)	1.60 [0.99, 2.59]	= .061
(12-14) - (15-17)	0.96 [0.64, 1.45]	= 1.000
(12-14) - (18-20)	1.15 [0.76, 1.74]	= 1.000
(12-14) - (21-29)	1.90 [1.34, 2.70]	< .001

(15-17) - (18-20)	1.20 [0.88, 1.65]	= 1.000
(15-17) - (21-29)	1.99 [1.50, 2.63]	< .001
(18-20) - (21-29)	1.65 [1.32, 2.06]	< .001

B. Weighted co-offending-only definition (social = co-offense only)

B1. Descriptives

Total			
Age group	Weighted N co-offense	Weighted % co-offense	95% CI (%)
<12	208788	27.5%	[22.80, 32.20]
12–14	671277	24.8%	[21.50, 28.20]
15–17	997387	32.6%	[29.40, 35.70]
18–20	1075954	33.2%	[30.00, 36.30]
21–29	2236077	21.1%	[19.80, 22.40]
30+	2492521	12.0%	[11.00, 13.10]
Theft			
Age group	Weighted N co-offense	Weighted % co-offense	95% CI (%)
<12	63800	32.5%	[24.50, 40.50]
12–14	142773	31.6%	[26.40, 36.80]
15–17	265869	34.3%	[30.10, 38.40]
18–20	307599	33.2%	[29.60, 36.80]
21–29	678412	24.1%	[21.50, 26.60]
30+	730038	17.4%	[15.50, 19.20]
Violent			
Age group	Weighted N co-offense	Weighted % co-offense	95% CI (%)

<12	144988	25.7%	[20.00, 31.50]
12–14	528503	23.5%	[19.40, 27.50]
15–17	731518	32.0%	[27.90, 36.20]
18–20	768354	33.2%	[29.10, 37.20]
21–29	1557665	20.0%	[18.50, 21.60]
30+	1762483	10.7%	[9.20, 12.20]

B2. Bonferroni pairwise comparisons

Total		
Contrast	OR [95% CI]	Bonferroni p
(30+) - under_12	0.36 [0.25, 0.53]	< .001
(30+) - (12-14)	0.41 [0.32, 0.54]	< .001
(30+) - (15-17)	0.28 [0.22, 0.36]	< .001
(30+) - (18-20)	0.28 [0.22, 0.34]	< .001
(30+) - (21-29)	0.51 [0.44, 0.59]	< .001
under_12 - (12-14)	1.15 [0.76, 1.73]	= 1.000
under_12 - (15-17)	0.78 [0.52, 1.18]	= 1.000
under_12 - (18-20)	0.76 [0.51, 1.14]	= .691
under_12 - (21-29)	1.42 [0.99, 2.03]	= .069
(12-14) - (15-17)	0.68 [0.52, 0.89]	< .001
(12-14) - (18-20)	0.67 [0.51, 0.87]	< .001
(12-14) - (21-29)	1.23 [0.95, 1.61]	= .294
(15-17) - (18-20)	0.97 [0.76, 1.26]	= 1.000
(15-17) - (21-29)	1.81 [1.45, 2.25]	< .001
(18-20) - (21-29)	1.85 [1.47, 2.34]	< .001
Theft		
Contrast	OR [95% CI]	Bonferroni p

(30+) - under_12	0.44 [0.24, 0.78]	< .001
(30+) - (12-14)	0.46 [0.30, 0.69]	< .001
(30+) - (15-17)	0.40 [0.30, 0.55]	< .001
(30+) - (18-20)	0.42 [0.31, 0.58]	< .001
(30+) - (21-29)	0.66 [0.55, 0.81]	< .001
under_12 - (12-14)	1.04 [0.55, 1.97]	= 1.000
under_12 - (15-17)	0.92 [0.50, 1.71]	= 1.000
under_12 - (18-20)	0.97 [0.52, 1.80]	= 1.000
under_12 - (21-29)	1.52 [0.85, 2.73]	= .538
(12-14) - (15-17)	0.89 [0.59, 1.32]	= 1.000
(12-14) - (18-20)	0.93 [0.62, 1.40]	= 1.000
(12-14) - (21-29)	1.46 [0.96, 2.21]	= .122
(15-17) - (18-20)	1.05 [0.74, 1.48]	= 1.000
(15-17) - (21-29)	1.65 [1.21, 2.23]	< .001
(18-20) - (21-29)	1.57 [1.14, 2.15]	< .001

Violent

Contrast	OR [95% CI]	Bonferroni p
(30+) - under_12	0.35 [0.21, 0.56]	< .001
(30+) - (12-14)	0.39 [0.29, 0.53]	< .001
(30+) - (15-17)	0.25 [0.19, 0.35]	< .001
(30+) - (18-20)	0.24 [0.19, 0.31]	< .001
(30+) - (21-29)	0.48 [0.39, 0.58]	< .001
under_12 - (12-14)	1.13 [0.69, 1.85]	= 1.000
under_12 - (15-17)	0.74 [0.44, 1.24]	= 1.000
under_12 - (18-20)	0.70 [0.43, 1.13]	= .437
under_12 - (21-29)	1.38 [0.88, 2.16]	= .497

(12-14) - (15-17)	0.65 [0.48, 0.89]	< .001
(12-14) - (18-20)	0.62 [0.45, 0.86]	< .001
(12-14) - (21-29)	1.22 [0.90, 1.66]	= .794
(15-17) - (18-20)	0.95 [0.70, 1.29]	= 1.000
(15-17) - (21-29)	1.88 [1.43, 2.47]	< .001
(18-20) - (21-29)	1.98 [1.53, 2.56]	< .001

C. Unweighted robustness (Total only; co-offending-only definition)

As a robustness check, we replicated the co-offending-only analysis without survey weights. Results were consistent in direction with the weighted analyses.

C1. Descriptives

Age group	Unweighted N	Unweighted % co-offense
30+	9869	11.7%
<12	386	27.7%
12-14	1033	27.7%
15-17	1259	35.9%
18-20	1432	33.7%
21-29	4913	20.6%

C2. Logistic regression odds ratios (reference = 30+)

Age group	OR [95% CI]	p
<12	2.91 [2.30, 3.65]	< .001
12-14	2.90 [2.50, 3.37]	< .001
15-17	4.25 [3.73, 4.84]	< .001
18-20	3.86 [3.40, 4.37]	< .001
21-29	1.97 [1.80, 2.16]	< .001

C3. Bonferroni pairwise comparisons

Contrast	OR [95% CI]	Bonferroni p
(30+) - under_12	0.34 [0.24, 0.49]	< .001
(30+) - (12-14)	0.34 [0.28, 0.43]	< .001
(30+) - (15-17)	0.24 [0.19, 0.29]	< .001
(30+) - (18-20)	0.26 [0.21, 0.31]	< .001
(30+) - (21-29)	0.51 [0.44, 0.58]	< .001
under_12 - (12-14)	1.00 [0.68, 1.48]	= 1.000
under_12 - (15-17)	0.68 [0.47, 1.00]	= .046
under_12 - (18-20)	0.75 [0.52, 1.09]	= .383
under_12 - (21-29)	1.48 [1.04, 2.09]	= .016
(12-14) - (15-17)	0.68 [0.52, 0.89]	< .001
(12-14) - (18-20)	0.75 [0.58, 0.98]	= .021
(12-14) - (21-29)	1.47 [1.17, 1.85]	< .001
(15-17) - (18-20)	1.10 [0.87, 1.40]	= 1.000
(15-17) - (21-29)	2.16 [1.76, 2.64]	< .001
(18-20) - (21-29)	1.96 [1.61, 2.38]	< .001