Models of weapon-carrying
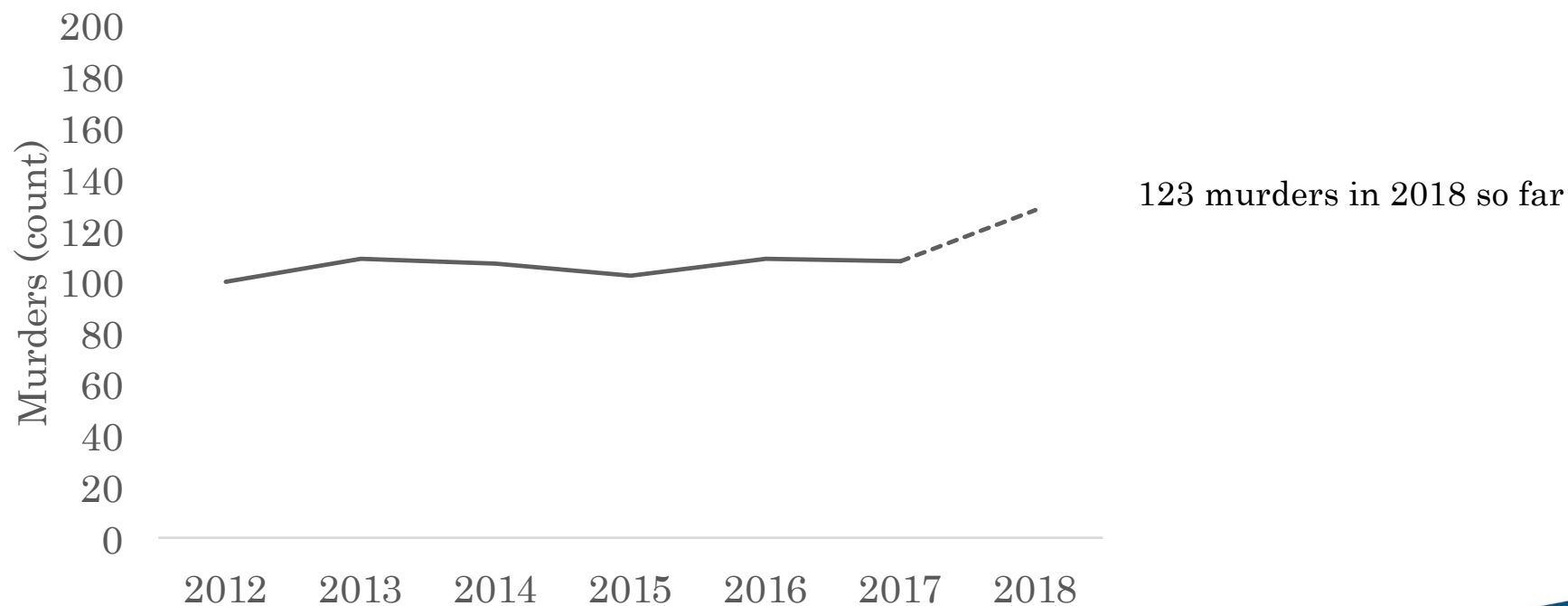
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Crime Survey User Conference

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Murder in London, 2011-2017

Murders (count)

200
180
160
140
120
100
80
60
40
20
0

123 murders in 2018 so far

2012   2013   2014   2015   2016   2017   2018

Weapon-carrying and violent harm

Mortality likelihood is 20 times higher when a firearm is involved (Cook, 1991)

Weapon use increases injury severity (Brennan et al., 2006; Apel et al., 2013; Saltzman et al., 1992)

Strongest predictor that a violent incident will require hospital treatment

(Brennan et al., 2010)

Weapons used in ~20% of violence but ~70% of murders

Removing weapons from violent encounters would greatly decrease the burden of violent harm

How prevalent is weapon-carrying?

12% increase in sharp weapon offences in 2017-18

Self-reported weapon-carrying (≥ once in past year) in 2003-2006
 was ~4%

No good estimates of prevalence at prevention-useful levels

Police data? A&E data? Survey data?

Theory: Social-ecology of weapons

Individual: violence; self-defence; identity

Interpersonal: peer-based reinforcement loop

Community: lethality proportional to demand; entitlement/police competence

Studies

Aims: To identify predictors of self-reported weapon-carrying (gun/knife)

1: Cross-sectional predictors of weapon-carrying (2004-06; 10-25 yrs)
2: Longitudinal predictors of weapon-carrying (2004-06; 10-25 yrs)

[1]Cross-validated logistic regression
[2]Generalised linear mixed model

Cross-sectional predictors of weapon-carrying (2004-2006; 10-25 yr olds)

Variable (reference category)	Full model		Best model	
	OR	95% CI	OR	95% CI
Sex (Female): *Male*	2.77***	1.94-3.94	2.81***	1.99-3.95
Age	1.41	0.96-2.08	1.42	0.97-2.09
Age squared	0.99*	0.98-1.00	0.99*	0.98-0.99
Ethnicity (White): *Non-white*	1.54	0.96-2.46	1.54	0.97-2.46
Violence in past year (No): *Yes*	2.79***	2.02-3.87	2.85***	2.06-3.93
Drug use in past year (No): *Yes*	2.36***	1.67-3.32	2.41***	1.71-3.38
Trust in police (A lot): *A fair amount*	1.32	0.80-2.18	1.26	0.76-2.07
Not very much or not at all	2.25**	1.35-3.78	2.27**	1.36-3.79
Victim of violence (No) *Yes*	1.33	0.92-2.02	1.54**	1.11-2.12
Threatened with violence (No) *Yes*	1.17	0.86-1.93		
Peers in trouble with police (None): *A few*	1.56	1.15-2.20	1.62**	1.17-2.23
More than a few	2.24	1.17-4.29	2.28*	1.20-4.35
Disorder	1.26**	1.13-1.41	1.25***	1.12-1.39
Area safety (Very safe): *Fairly safe*	0.62	0.43-0.90		
Fairly unsafe	0.63	0.39-1.02		
Very unsafe	0.91	0.49-1.66		
N	5,218		5,228	
McFadden's R²	0.33		0.32	

Males
Late teens
Recent violence
Recent drug use
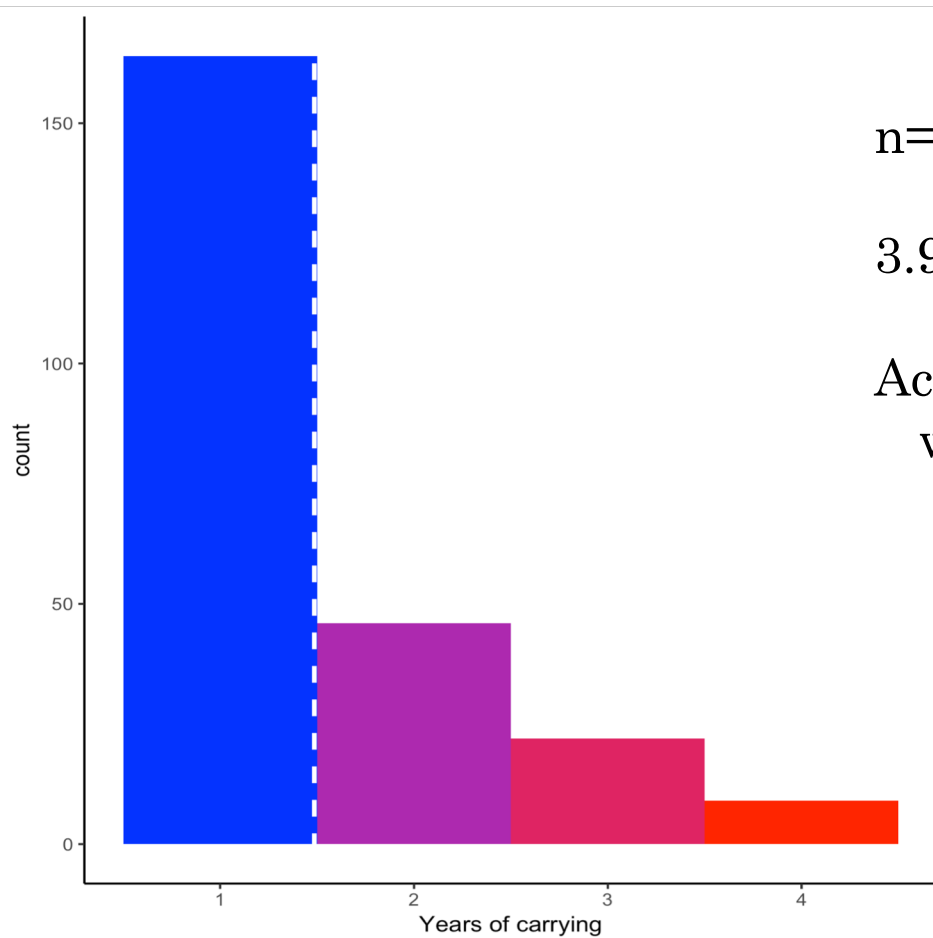Little or no trust in the police
Recent victimisation
Criminal peers
Disordered neighbourhoods

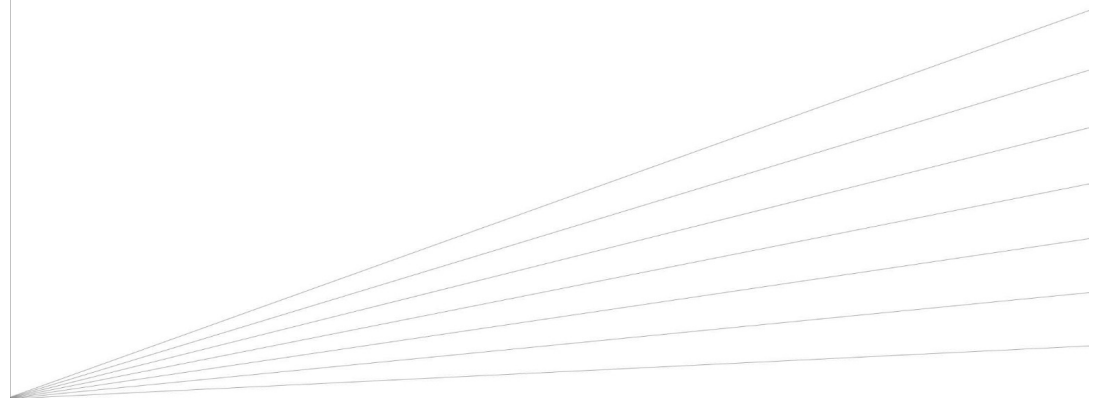|	T	F
P	21	39
N	16	719

Best model fit: AUC=0.87

Longitudinal measures of weapon-carrying

n=2,444; 9,759 observations

3.9% reported weapon-carrying in past year

Across four years, 364 instances of carrying a weapon at least once by 244 10-25 yr olds

One-year lagged predictors of weapon-carrying

		Full model OR	95% CI	Best model OR	95% CI
Intercept		0.0004	0.00001-0.0046	0.0006	0.0001-0.002
Wave		0.96	0.61-1.51		
Peers in trouble (None)	A few	2.69**	1.56-4.67	3.03***	1.74-5.34
	More than a few	10.18***	2.81-37.4	13.60***	3.79-50.62
Trust in police (A lot)	A fair amount	1.77	0.84-4.11	1.92	0.90-4.52
	Not very much or not at all	3.62***	1.59-9.21	4.57***	2.00-11.81
Victimisation (No)	Yes	2.03	1.18-3.53		
Violence (No)	Yes	2.66**	1.49-4.90	3.94***	2.23-7.19
Drug use (No)	Yes	2.05	1.17-3.64		
ICC		0.62		0.65	

Early identifiers of weapon-carrying

t_x

t_{x+1}

Violence
Criminal peers
Declining trust in the police
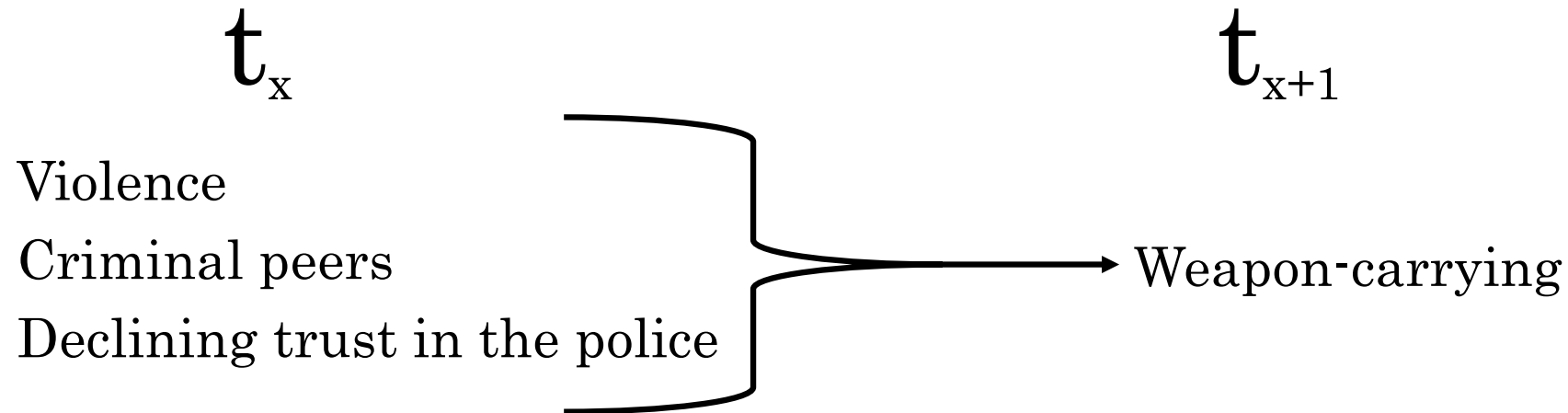
Weapon-carrying

Theoretical insights

Weapon-carrying forms part of a wider pattern of criminogenic factors

Victimisation predicts but not as much as perpetration

Peers are crucial in the initiation of weapon-carrying

Trust in police could mean many things, *possibly* entitlement

Discrete intervals mean that timing of weapon-carrying pathway is hard to model (time lag could reflect 2-729 days)

Practical insights

Weapon carriers are unusually homogeneous and (nearly) criminal

Primary interventions for weapon-carrying are likely to be ineffective; Secondary intervention with 'at-risk' groups look to be efficient/sensible

Focus on engagement following initiation violence and intervene with peers collectively

Research questions and directions

How can we accurately estimate weapon-carrying in local areas?

What is the influence of community on weapon-carrying and weapon lethality?

The way that conflict develops and plays out has changed since OCJS

A new offending survey with low-level geographical information and new items to reflect early life experiences and online/offline conflict would be a valuable source of information

Thanks!

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