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Criminal Careers and Early Death: Relationships In the Cambridge Study In Delinquent Development

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Prior research shows that convicted and incarcerated persons tend to die early, but this research does not investigate the relationships between criminal career features and early death. The aim of this article is to utilize the Cambridge Study in Delinquent Development longitudinal sample of males to study this; 54 males who died early (up to age 65) are compared with 332 males who did not emigrate and did not die early. The results show that convicted offenders, early onset offenders, recidivists and chronic offenders tended to die early, but there were relatively weak relationships between early death and life-course-persistent offenders and career duration. It is concluded that much more research on the relationship between early death and criminal career features is needed, and further tests of criminological theories need to take account of the time at risk of offending.

Key Words: mortality, early death, criminal careers, longitudinal study

INTRODUCTION

A career spent in criminality is usually associated with various problems that accumulate across the life course, with early death being one of the most severe consequences (West and Farrington 1977; Hämäläinen and Pulkkinen 1996; Stattin and Magnusson 1996; Huizinga and Jakob-Chien 1999; Herrenkohl *et al.* 2000; Rönkä *et al.* 2001; Nikolic-Ristanovic 2014).

There is strong evidence that links crime and negative life experiences (Vaughn *et al.* 2020). Amongst offender populations, studies of mortality have been less prevalent than work that examines physical and mental well-being (for reviews, see Wildeman and Muller 2012; Massoglia and Pridemore 2015; Wildeman and Wang 2017). The absence of relevant data over meaningful time periods, and reporting upon mortality itself, may partially explain this gap (Timonen *et al.* 2003; Teplin *et al.* 2005; Farrington and Hawkins 2019). That is, few studies posses data on death which would allow this to be studied. However, for reviews of this topic, see Skinner and Farrington (2020*a*; 2020*b*).

Offender-based samples: adolescence

Research investigating death amongst adolescent ex-offenders has established that this group has high mortality rates. In the United States, one study tracked male Connecticut teenage prisoners following their release and showed that 3.7 per cent had died before the age of 25 (Yeager and Lewis 1990). This makes the mortality rate of their sample approximately 58 times the national average for individuals in their age group at that time. All died violent deaths, making the violent death rate of the sample approximately 76 times the national average. A larger piece of research in Australia, which included both males and females, similarly tracked released adolescents for a median of 3.3 years (males) or 1.4 years (females) after incarceration (Coffey *et al.* 2003). The average rate of death of 8.5 deaths per 1,000 person-years was much higher when compared with only 1.1 per 1,000 in the wider population. This rate was 9 times higher (males) and 40 times higher (females) than average age-related mortality expectations for this country and time period. Also, in Finland, a study of 3,832 young ex-offenders revealed that more than 11 per cent had died by the end of their 17-year follow-up period, typically from causes such as drug abuse, though not for age-specific emotional conditions—e.g., childhood-onset psychiatric disorder (Sailas *et al.* 2006).

Offender-based samples: adulthood

In the case of mortality research on adult offenders, most studies have concentrated on the post-incarceration period and such research has revealed similar results to that found for younger offenders (Stewart *et al.* 2004; Binswanger *et al.* 2007).

In America, a multi-decade study of children with a record of youth behavioural issues showed that, by 40 years old and compared with a comparison cohort, unnatural deaths, such as homicide or suicide, were far more prevalent (Robins and O'Neal 1958). In a California study, which followed two cohorts from 1981–82 and 1986–87 until 31 December 1992, of more than 4,000 youth paroled by the California Youth Authority, researchers found significantly elevated rates of death of 5.5 and 3.5 per cent, respectively (Lattimore *et al.* 1997). Studies by Laub and Vaillant (2000) and Laub and Sampson (2003: 72), using data from the American Glueck Study, showed significantly heightened mortality rates for young offenders, by ages 40 and 65, and then again by age 70. At age 40, the death rate was 100 per cent higher than that of the non-offending control group, and this was 59 per cent higher at age 65. By age 70, the rate of death of the non-offenders had risen to just under half of the total of the offenders.

The Cambridge-Somerville Youth Study is a delinquency prevention experiment and prospective longitudinal survey which included 506 at-risk boys, ages 5–13 years, who have been followed up to age 83. In this project, Welsh and colleagues (Welsh *et al.* 2019; Zane *et al.* 2019) found that life-course-persistent offenders tended to die 7–8 years earlier than either adolescence-limited offenders or non-offenders, although these group differences were not evident until after age 50. In the Pittsburgh Youth Study, which is a prospective longitudinal study of 1,517 inner-city males from age 7 to 13 years onward, 61 died up to age 29 years, and in the majority of cases (39), the cause of death was homicide. Nearly half (44 per cent) of those who died by homicide were convicted of crimes up to age 14 years, compared with 17 per cent of the remainder (Loeber and Farrington 2011).

In Europe, research in Sweden including both male and female offenders revealed that, 18 years after offending, males had suffered a death rate of 13 per cent and females 10 per cent. The great majority of these premature deaths were suicides, murders and substance abuse related (Rydelius 1988). Also in Scandinavia, a study of over 1,000 previous adolescent psychiatric inpatients once again demonstrated the existence of higher than typical mortality rates, this time linked primarily to being male, substance abuse and impulse management (Kjelsberg *et al.* 1999). A more recent study of offenders with an antisocial personality in Scandinavia re-

vealed a 5–9 times increase in mortality levels, rising to 6–17 times for those suffering unnatural deaths (Repo-Tiihonen *et al.* 2001).

In a Norwegian investigation of a mixed-sex sample of car drivers convicted of drink/drug offences during the mid-1990s, 100 males from 598 sampled, and 29 females from 207 sampled, died in the relatively short 6.8-year follow-up period (Hausken *et al.* 2005). In an Italian study of mainly male drug users who had sought treatment, it was found that the level of mortality was 15 times higher than the overall population for males and 38 times higher for females (Bargagli *et al.* 2001). It was also reported in Norway that those who had previously offended were twice as likely to die compared with non-offending samples (Skardhamar and Skirbekk 2013).

In a Swedish multi-decade study of homicide offenders, over half of the offenders had died, with suicide being a common cause. This was 3 times the rate of mortality in the wider population (Lindqvist *et al.* 2007). In a study looking at drug users based on clinic attendance data, excess mortality was present before age 50, and some predictors were found. These included mental illness, hospitalization for physical illness related to substance misuse and antisocial behaviour (Samuelson *et al.* 2009).

Also in Europe, the Dutch Criminal Careers and Life Course Study, which is an investigation that surveyed convicted offenders from 1977 until 2002, showed that early mortality was most acute amongst repeat offenders (Nieuwbeerta and Piquero 2008). In America, a study of 23,510 felons, convicted on a set date (30 June 1991) and examined 15 years later, found that mortality rates were much higher after, rather than during, incarceration (Spaulding *et al.* 2011). In the Dutch study, links between repeat offending and unnatural deaths were strongly established (Nieuwbeerta and Piquero 2008).

In 2004, research in Australia linked both early and frequent incarcerations with enhanced risk of mortality (Coffey *et al.* 2004). In a more recent Australian study, using an estimation methodology, it was shown that mortality amongst released offenders was significantly higher than deaths in custody, with the main concentration of mortality occurring in the first 28 days after release (Kinner *et al.* 2011). Swiss research found that unnatural mortality was widespread amongst the released offender population (Sattar and Killias 2005).

There are a number of ways that offending can be defined which may have an impact on the relationship between offending and mortality. Typically, offending has been based on a dichotomous Yes/No status which incorporates the type of offence (e.g., violent vs. non-violent; Berg *et al.* 2019) and also the number of offences committed (Sourander *et al.* 2006; Elonheimo *et al.* 2009; Elonheimo *et al.* 2011). But, beyond the binary relationship between offending and mortality, there is a concern that the nature and frequency of convictions is only two ways, and limited ways at that, of capturing the full extent of offending behaviour. With the growing sense of a wider criminological population requiring health support, there is a requirement to encourage health services to identify all those who require support across the life course. Developing a more complete understanding of the relationship between offender 'types' and mortality would assist in achieving better health outcomes for these groups (Laub and Vaillant 2000; Coffey *et al.* 2004; Chassin *et al.* 2013; Skardhamar and Skirbekk 2013).

Turning to UK National Offender Management Service data, a study aimed to address the gap in knowledge about the lives of offenders after state custody, in this case immediately after release. It stated that a key motivation for the authors' work was that 'people who die following state detention have received considerably less attention than those who die in custody' (Phillips *et al.* 2016: 9). It points out that the physical health of ex-offenders does not receive the attention that is needed, especially in terms of its potentially strong relationship with the time in prison or under police control. The study examined 3,129 offenders, previously held in custody, who died under probation supervision within a 5-year period after release. It concluded that premature death was most likely to occur in the first 8 days after release and that the principal

cause of such early mortality was drug-related, and that sex offenders were over-represented. The report made numerous suggestions about improving health skills within British policing and custodial services (Phillips *et al.* 2016).

It is clear that amongst select 'at risk' samples, such as those who abuse substances and those with mental health conditions and offenders, a significant body of evidence suggests a higher likelihood of mortality. However, these results may not be representative of all offender types in the population. Examinations of general populations in respect of mortality, which also focus on non-offenders who do not contain typical offender risk factors, such as a high prevalence of drug use and mental health histories, are sparse. General population studies will be reviewed in the following section.

Population samples

In a 1995 study in Sweden, Stattin and Romelsjo (1995) found that, in a follow-up of 7,757 males from 18 to 33 years of age, the rate of death amongst offenders was 3 per cent—more than double the 1.3 per cent death rate of those not involved in criminality. The researchers stated that this disparity was partly related to the fact that some of the samples were active in substance abuse (see also Bird and Hutchinson 2003). Also in Sweden, a direct relationship was established between the total number of convictions that individuals received and early mortality (Stenbacka and Jansson 2014). In Finland, a large study of over 12,000 children born in 1966, who were followed up at age 27, found that most of the deaths that occurred were unnatural and, once more, that criminality and personality disorders were significant risk factors for early death (Rasanen *et al.* 1998).

In recent British research, Phillips *et al.* (2018: 162) state that most 'non-natural deaths that occur after a period of prison custody have been subject to considerably less research than similar deaths in custody'. They went on to cite several pieces of research linked to the immediate period after offenders had been released from custody. These include a study in Australia (Graham 2003) which argued that newly liberated offenders can suffer 10 times the rate of premature mortality than the general population, and also research in America that showed an increased rate of early death: 2.08 times higher for White ex-prisoners (Rosen *et al.* 2008). The causes of such early deaths have been linked to drug use and also self-harm, with a systematic review in Britain demonstrating that self-harm culminated in a suicide rate of 6.76 times the general population (Jones and Maynard 2013). This result has been replicated in America, where increased risks have similarly been related to factors such as drugs, suicide and homicide (Fazel and Zlodre 2012).

Similarly, a recent Office for National Statistics (ONS) report (2020) found that, in 2019/20, amongst all offenders under community supervision (court order supervision, post-release supervision), there were 865 male deaths, with 34 per cent self-inflicted and 32 per cent due to natural causes. There were also 137 female deaths in 2019/20. The main cause of female deaths was self-inflicted (37 per cent), followed by deaths from natural causes (34 per cent). At the time of death, 36 per cent of males were aged 36–49, compared to 49 per cent of females in 2019/20. 21 per cent of males and 24 per cent of females were aged 50–65. Males were more likely than females to be in the youngest and oldest age groups, with 8 per cent of males aged 18–24 (compared with 4 per cent of females) and 10 per cent of males aged over 65 (compared with 1 per cent of females).

Next, two theories that aim to explain the premature mortality of offenders will be explored.

Theories explaining mortality due to offending

There is a distinct lack of research on the premature mortality of offenders that employs and tests theories (Miller *et al.* 2011). Two theories do exist, however, and they could provide a use-

ful starting framework for practical research work. The first of these is Gottfredson and Hirschi's (1990) general theory of crime, which linked crime to low self-control, but which interestingly pointed out that '. . . crime is often among the least serious consequences of a lack of self-control in terms of the quality of life of those lacking it' (94). This theory has spawned investigations into the links that may exist between low self-control and a wide range of undesirable behaviours (Arneklev et al. 1993; Evans et al. 1997; Paternoster and Brame 1998; Pratt and Cullen 2000).

These works postulate that those in the population with low self-control require immediate satisfaction of their impulses, and that they achieve this satisfaction without due assessment of the future consequences for their life chances or future well-being. However, Gottfredson and Hirschi themselves went further and argued that offenders generally risked worse health in their future years than non-offenders, and that 'offenders tend to be involved in accidents, illness, and death at higher rates than the general population' (94). Additionally, Gottfredson and Hirschi argued that 'the traits composing low self-control are also not conducive to the achievement of long-term individual goals. On the contrary, they impede educational and occupational achievement, destroy interpersonal relations and undermine physical health and economic well-being' (96). Thus, these authors argued that individual differences in self-control influence early mortality.

This theoretical link has not been extensively explored by subsequent researchers. Where it has been studied, the consensus is that low self-control is indeed a predictor of premature mortality. The main studies of this type linked a lack of control to early death, especially from homicide (Piquero et al. 2005), and showed that poor choices led to worse well-being and health problems (although the correlation was not very strong, see Miller et al. 2011).

Moffitt's (1993) developmental taxonomy is another theory that has not been sufficiently exploited for its possible insights into the relationship between mortality and offending. This theory, latterly extended, proposes that there are two types of offenders, each of which has a different aetiology, behaviour and outcomes that have impacts throughout the lives of types of offenders. The first of these types she termed 'adolescence-limited'. Here, early offending is related to the strain between fast-growing physical capability, desires, peer influence and low social access to adult behaviours (McGee and Moffitt 2019). Consequently, rule-breaking in areas such as vandalism, drug-taking and delinquency occurs. However, these undesirable behaviours are time-limited and largely cease as adulthood proper is reached.

The second cluster Moffitt termed 'life-course-persistent' (LCP). In this group, a far more long-term and definable aetiology is seen to exist. This starts with the in-utero effects of maternal actions and continues with a childhood environment that is not conducive to remediating the inherent individual problems that increasingly develop (McGloin et al. 2006). For example, evidence suggests that LCPs possess cognitive deficits, an under-controlled temperament, hyperactivity, poor parenting, poverty, disrupted families, genetic and biological factors (for a review, see McGee and Moffitt 2019). Such inherent disadvantage is then reinforced by poor opportunities in adolescence, and these restrictions are accompanied by antisocial and ultimately criminal behaviours. These entrenched characteristics, Moffitt argues, continue across the whole of adult life, during which chances to change path are infrequent.

Only a limited amount of research has linked this taxonomy to mortality or poor health, with the majority of studies choosing to purely examine antisocial and criminal elements. This is despite Moffitt predicting that 'life-course-persistents' antisocial lifestyle, violence, socioeconomic stress, and hostile personality will place them at greatest risk in midlife for poor physical health, cardiovascular disease, and early mortality' (2003: 65).

One study that investigated poor well-being in the context of Moffitt's taxonomy analysed the Baltimore part of the National Collaborative Perinatal Project, which was a longitudinal

study of several thousand subjects who were followed from birth to ages 27–33. Comparing adolescence-limited to LCP offenders, this work showed that it was the latter who were more likely to experience both physical and mental health issues. Additionally, the latter group also adopted antisocial practices (e.g. alcohol, cigarette and drug use) and these also generated poor health outcomes (Piquero *et al.* 2007a). Piquero *et al.* (2010; 2011) and Skinner *et al.* (2020) related offending to early death in the Cambridge Study in Delinquent Development (CSDD; described below). They found that by age 48 offending trajectories differentially predicted health outcomes, with high-rate chronic offenders at the greatest risk—even when logistic regression modelling ruled out individual or environmental childhood risk factors for offending as a likely common cause of offending and health problems (Piquero *et al.* 2014).

In two further studies, using data the Dunedin Multidisciplinary Health and Human Development Study, Odgers *et al.* (2007) firstly found that, of four conduct problem trajectories (childhood-onset/life-course-persistent, adolescent-onset, childhood-limited, and low), the first cluster experienced the worst health burden—in terms of mental and physical health problems at 32 years of age measured via diagnostic interviews and physical examinations. In the second study using the same source of data, these researchers found a link between the use of alcohol or drugs before age 15 and an elevated likelihood of early pregnancy, school failure, substance dependency, sexually transmitted diseases and criminal activities. These results held up independently of early childhood behaviour (Odgers *et al.* 2008).

The crucial difference between Gottfredson and Hirschi (1990) and Moffitt (1993) is that the former would argue that LCP offenders differ in degree from other offenders, whereas the latter would argue that these two types of offenders differ in kind, because they are influenced by different risk factors. However, both theories would predict that LCP offenders are more extreme than other offenders in their deviant lifestyles. To the extent that early deaths are caused by deviant, risky and unhealthy lifestyles, it would be expected that LCP offenders would, on average, die earlier than other offenders. Both theories would predict that the prevalence of early death would increase from non-offenders to one-time offenders to recidivists and then to chronic offenders (defined as committing five or more offences; see Farrington 2020). However, while Gottfredson and Hirschi (1990) would predict that adolescence-limited offenders would tend to die earlier than non-offenders, we would argue that Moffitt (1993) would not predict this, because adolescence-limited offenders would become similar to non-offenders after they give up offending. Indeed, Farrington *et al.* (2006) found that 'desisters', who were convicted up to age 20 but not subsequently, were very similar to non-offenders in life success measures at age 48.

Summary of prior research on offending, theoretical frameworks and mortality

The above review reveals that there are gaps in the literature relating offending to early mortality. While the works of Gottfredson and Hirschi (1990) and Moffitt (1993) are informative in explaining both individual and clustered health and behavioural patterns, explanatory theories have not been deployed to try to explain greater mortality rates amongst offenders more generally (Tremblay and Pare 2003). It is also clear that studies have revealed high rates of death for offenders vs. the general population. But subgroupings of offenders and variations in the duration and frequency of offending have not been sufficiently explored in a way that might lead to a more complete understanding of this (Lattimore *et al.* 1997; Laub and Vaillant 2000; Piquero *et al.* 2005; Piquero *et al.* 2011). The evidence from prior studies stimulates a desire to adopt broader public health models in advancing the understanding and mitigation of the long-term physical health problems of offenders (Akers and Lanier 2009). The present research will use theory as a basis for a new, epidemiological criminology-based investigation into offender mortality, including life-course developmental taxonomies (McGee and Moffitt 2019).

To summarize, prior research shows links between offending and early mortality. The main aim of this article is to provide much more detail about these links, by comparing early mortality with a range of criminal career features: not just prevalence (offenders vs. non-offenders), but also the number of offences, the age of onset, the duration of criminal careers and types of offenders, including chronic offenders and LCP offenders. These kinds of detailed analyses on the mortality of offenders have never been carried out before. In addition, we will derive implications from the results for the theories of Gottfredson and Hirschi (1990) and Moffitt (1993).

METHODS

Sample: the CSDD

The CSDD is a prospective longitudinal survey of 411 London males who were first studied in 1961–62 at age 8–9. Their parents, teachers, peers, female partners and children have also been interviewed. In the interests of clarity, the original 411 males are now termed generation 2 (G2), their parents are termed generation 1 (G1), and their children are now termed generation 3 (G3). The CSDD was begun by Professor Donald West in 1961. Professor David Farrington joined Professor West to work on the CSDD in 1969 and took over the direction of the CSDD in 1982. The latest interviews were carried out in collaboration with Professor Jeremy Coid (Farrington et al. 2021). The results of the CSDD have been described in six books (West 1969; 1982; West and Farrington 1973; 1977; Piquero et al. 2007b; Farrington et al. 2013) and in seven summary articles (Farrington and West 1981; 1990; Farrington 1995; 2003; 2019; 2021; Farrington et al. 2009).

At the time they were first contacted in 1961–62, the G2 boys were all living in a working-class area of South London. The vast majority of the sample was chosen by taking all the boys who were then aged 8–9 and on the registers of six state primary schools within a one-mile radius of a research office that had been established. In addition to 399 boys from these six schools, 12 boys from a local school for 'educationally subnormal' children were included in the sample, in an attempt to make it more representative of the population of boys living in the area. Therefore, the G2 boys were not a probability sample drawn from a population, but rather a complete population of boys of that age in that area at that time. Most of the G2 boys were born in 1953.

Most of the G2 boys (357 or 87 per cent) were White in appearance and of British origin, in the sense that they were being brought up by parents who had themselves been brought up in England, Scotland or Wales. Of the remaining 54 boys, 12 were African-Caribbean, having at least one parent of West Indian (usually) or African origin. Of the remaining 42 boys, 14 had at least one parent from the North or South of Ireland, 12 had parents from Cyprus, and the other 16 boys had at least one parent from another Western industrialized country.

On the basis of their fathers' occupations when they were aged 8, 94 per cent of the G2 boys could be described as working-class (categories III, IV or V on the Registrar General's scale, describing skilled, semi-skilled or unskilled manual workers), in comparison with the national figure of 78 per cent at that time. The majority of the boys were living in conventional two-parent families with both a father and a mother figure; at age 8, only 6 per cent of the boys had no operative father and only 1 per cent had no operative mother. This was, therefore, overwhelmingly a traditional White, urban, working-class sample of British origin.

The G2 males have been assessed or interviewed 9 times, at ages 8, 10, 14, 16, 18, 21, 25, 32 and 48. At all ages except 21 and 25, the aim was to interview all the males who were still alive, and it was always possible to interview a high proportion: 405 (99 per cent) at age 14, 399 (97 per cent) at age 16, 389 (95 per cent) at age 18, 378 (94 per cent) at age 32 and 365 (93 per cent) at age 48.

Criminal record searches

The minimum age of criminal responsibility in England and Wales is 10. Officially recorded cautions were counted as well as convictions in the Police National Computer (PNC), since cautions were routinely recorded on a national basis from 1995. In this article, 'convictions' include cautions, which can be given to adults as well as juveniles. Over time, there has been a tendency to replace convictions with cautions, so many cautions are given nowadays where there would have been convictions in days gone by. Convictions were only counted for offences committed on different days, so that each conviction represented a separate incident.

Convictions were only counted if they were for 'standard list' (more serious) offences, thereby excluding minor crimes such as minor traffic infractions and simple drunkenness. The most common offences that were included were thefts, burglaries and unauthorized takings of vehicles, although there were also quite a few offences of violence, vandalism, fraud and drug abuse. The definition of what is a 'standard list' offence changed over time. In particular, common assault became a standard list offence in July 1995, drunk-driving was added to the standard list from January 1996, and being drunk and disorderly was added in April 1997. All of these types of offences were counted. Criminal records of these males have been traced up to age 61. In this article, 'offenders' refer to convicted offenders.

Chronic offenders were defined as those with five or more convictions, while LCP offenders were defined as those with a criminal career (between the first and last offence) lasting at least 20 years (see Farrington 2020). Adolescence-limited offenders were defined as those who first offended up to age 20 and last offended before age 30 (see Jolliffe *et al.* 2017). Early onset offenders were defined as those who first offended between ages 10 and 16 (which were the juvenile years at the time). Recidivists were those with two or more offences.

Death records

Death records of the G2 males in the CSDD were collected by Piquero *et al.* (2014), who obtained information about deaths up to 2010, at an average age of 57, from relatives during attempts to interview the G2 men and their female partners and children. This information was supplemented by searches in the General Register Office, and 31 males were found to have died, at the average age of 42.

To supplement and update these findings, Freedom of Information Act requests were sent to NHS Digital, asking them to disclose whether their records indicated whether an individual from the CSDD had died. All individuals recorded as deceased according to NHS Digital were then searched within the General Register Office's Death Registry, and death certificates were requested up to 2019. In total, 386 individuals were considered to be searched, because they had not emigrated up to the last interview at age 48. If they had not emigrated up to age 48, it was likely that they had not emigrated up to age 65.

Analytic plan

Our analyses were conducted in two parts. Firstly, we compared early death (ED), operationalized as deaths up to age 65, with not early death (NED) in the following ways:

- ED vs. NED on % Convicted
- ED vs. NED on % One-Time Offenders
- ED vs. NED on % Recidivist
- ED vs. NED on % Chronic Offenders
- ED vs. NED on % Early Onset Offenders
- ED vs. NED on % Life-Course-Persistent Offenders
- ED vs. NED on % Adolescence-Limited Offenders

- ED vs. NED on % Incarcerated
- ED vs. NED on Average No. of Offences
- ED vs. NED on Average Age of First Offence
- ED vs. NED on Average Age of Last Offence
- ED vs. NED on Average Criminal Career Duration
- ED vs. NED on Average Time Incarcerated

Average number of offences, criminal career duration and the average time incarcerated were also studied in relation to time at risk (i.e. up to the age of death).

Secondly, we compared those with convictions and those without convictions within the ED group in the following ways:

- Mean Age of Death of Convicted vs. Non-Convicted
- Mean Age of One-Time Offenders vs. Rest
- Mean Age of Recidivists vs. Rest
- Mean Age of Chronics vs. Rest
- Mean Age of Early Onset vs. Rest
- Mean Age of Life-Course-Persistent vs. Rest
- Mean Age of Adolescence-Limited vs. Rest
- Mean Age of Incarcerated vs. Rest

In order to compare the dichotomous and continuous results more directly, the odds ratio (OR) and F values were both converted into Cohen's d, using the following equations (Wilson and Lipsey 2001: 199–202):

$d = \text{Ln(OR)} \times 0.5513$

$d = \text{sqrt}[F \times (n1 + n2)/(n1 \times n2)]$

We used one-tailed p-values because of clear directional predictions. It was not possible to control for a large number of variables within the scope of this exploratory paper. We hope to investigate whether relationships between criminal career features and ED hold up independently of other variables in a future paper.

RESULTS

We identified 54 deaths up to age 65, which we classified as 'early death'. The average age of death was 49.84. The remaining 332 males who were still alive at age 65 were classified as 'non-early death'. As would be expected, the causes of death were quite variable; 36 of the 54 deaths were considered to be from natural causes. The most common of these causes were serious health problems (haemorrhage, pneumonia, pulmonary embolism), types of cancer (throat, pancreas, bone, oesophageal), blood diseases (septicaemia) and heart attacks or strokes. One male died from multiple sclerosis, and another from motor neurone disease. Fifteen of the 54 deaths were considered 'unnatural', including five accidents, three suicides, two drug overdoses, four alcoholic liver disease, and one death while trying to escape from a penal institution. Of the 36 males whose deaths were considered 'natural', 18 were convicted, compared with 9 of the 15 males whose deaths were considered 'unnatural'. In the other three cases, all of whom were convicted, the cause of death was not known.

Table 1 shows, as expected, that convicted males tended to die significantly earlier than non-convicted males. Of 54 EDs, 30 were convicted males (55.6 per cent), compared with 43.1 per cent (143) convicted out of 332 NEDs (OR = 1.652, p = 0.04, d = 0.307). Similarly, the EDs included significantly more recidivists, chronic offenders, early onset offenders and incarcerated

offenders, almost significantly more adolescence-limited offenders, but not significantly more one-time or LCP offenders. Effect sizes were highest for chronic and incarcerated offenders, and lowest for LCP offenders.

Table 1 also shows that ED males had more convictions on average than the NED males (7.10 compared with 4.97; $F = 1.098$, $p = 0.18$, $d = 0.210$). ED males had an earlier age of the first offence, an earlier age of the last offence, and a longer criminal career duration than NED males, but none of these effects was statistically significant. However, incarcerated ED males spent much more time incarcerated than incarcerated NED males (57.13 months compared with 8.78 months). Once time at risk was taken into account, ED males had significantly more offences, a longer average criminal career duration, and more time incarcerated.

Table 2 presents comparisons between ED males with and without convictions. It shows that males with a conviction had a significantly lower mean age of death than those without a conviction. One-time offenders, early onset offenders and adolescence-limited offenders were also significantly more likely to have a lower mean age of death. However, the remaining comparisons were not statistically significant. The largest effect sizes were for convicted and adolescence-limited offenders, while the smallest effect sizes were for recidivists and LCP offenders.

DISCUSSION

Prior research has linked offending to early mortality. However, prior studies have tended to rely on samples of serious offenders (often incarcerated), a limited time period of investigation, and

Table 1 Comparisons of early deaths and non-early deaths

Dichotomous variables	% of ED (N = 54)	% of NED (N = 332)	OR	p	d
% Convicted	55.6 (30)	43.1 (143)	1.652	0.04	0.307
% One-Time offenders	14.8 (8)	12.6 (43)	1.169	0.40	0.273
% Recidivist	40.7 (22)	30.1 (100)	1.595	0.06	0.257
% Chronic	27.8 (15)	16.0 (53)	2.025	0.01	0.389
% Early Onset Offending	29.6 (16)	19.6 (65)	1.730	0.05	0.302
% Life-Course-Persistent	16.7 (9)	11.1 (37)	1.595	0.12	0.257
% Adolescence-Limited Offenders	60.0 (18)	44.1 (63)	1.905	0.06	0.355
% Incarcerated	18.5 (10)	9.9 (33)	2.059	0.03	0.398
Continuous variables	Mean of ED	Mean of NED	F	p	d
Average Number of Offences[a]	7.10	4.97	1.098	0.18	0.210
Average Age of First Offence[a]	16.69	20.15	1.469	0.13	0.243
Average Age of Last Offence[a]	29.19	32.76	0.422	0.46	0.130
Average Criminal Career Duration in years[a]	6.94	5.43	1.252	0.09	0.225
Average Time Incarcerated in Months[b]	57.13	8.78	8.974	0.01	0.602
Average Number of Offences per year at risk[a]	0.20	0.10	16.351	0.01	0.812
Average Criminal Career Duration (% of time at risk)[a]	19.19	10.44	2.866	0.04	0.340
Average Time Incarcerated in Months per year at risk[b]	1.58	0.17	16.295	0.01	1.457

ED, early death; NED, non-early death; OR, odds ratio.
[a]Of those convicted.
[b]Of those incarcerated.

Table 2 Comparisons between offender groups within the early death group

Mean age of death	Mean of offender group	Mean of rest	F	p	d
Convicted vs. Non-Convicted	46.17 (30)	54.42 (24)	5.603	0.01	0.648
One-Time Offenders vs. Rest	42.43 (8)	51.13 (46)	3.041	0.04	0.668
Recidivists vs. Rest	47.53 (22)	51.42 (32)	1.124	0.15	0.294
Chronics vs. Rest	46.11 (15)	51.27 (39)	1.658	0.10	0.391
Early Onset vs. Rest	44.15 (16)	52.23 (38)	4.443	0.02	0.628
Life-Course-Persistent vs. Rest	53.83 (9)	49.03 (45)	0.976	0.16	0.361
Adolescence-Limited Offenders vs. Rest	41.97 (18)	53.77 (36)	11.334	0.01	0.972
Incarcerated vs. Rest	44.65 (10)	51.02 (44)	1.910	0.09	0.484

Mean age of death in the early death group = 49.84. The numbers of individuals in each group are shown in parentheses.

they often lacked a theoretical framework. This article sought to advance the understanding of mortality in offenders compared with non-offenders longitudinally, using the CSDD sample of South London males, collating records from NHS Digital and from the Public Record Office longitudinally up to 2019. Our findings show a clear relationship between ED and some criminal career features, but not others.

Prior research has shown that the prevalence of offending (convicted vs. unconvicted persons) and incarceration are related to ED. These results were replicated in the present research. However, the present research also revealed that more of the ED group had an early onset of offending, more were adolescence-limited offenders, more were recidivists, and more were chronic offenders. Perhaps surprisingly, there was no significant tendency for the ED group to be LCP offenders. Among the ED group, all categories of offenders tended to die earlier than the remainder, but the weakest relationships concerned recidivists and LCP offenders.

The weak relationships between LCP offenders and ED probably reflect the fact that death truncates the time at risk of offending. For example, the first CSDD male who died (at age 17.79, while trying to escape from a penal institution) began offending at age 10.49 and had 16 convictions up to age 17.09, more than any other CSDD male up to that age. If he had not died, his criminal career duration would almost certainly have been much greater than 6.6 years. Mainly because of his ED, he was classified as an adolescence-limited offender, but if he had not died he would probably have become a LCP offender.

Unfortunately, within the scope of this paper, the analyses presented here could not take into account further risk factors likely to influence the morality–crime relationship. For example, the neuropsychological deficits of Moffitt's LCP category are variously argued to be inherited or acquired through a wide range of environmental influences. For instance, a lack of breastfeeding (Quinn *et al.* 2001); pregnancy/birth problems (Arseneault *et al.* 2002), maternal smoking (Raine 2002) or alcohol consumption (Sampson *et al.* 1989) during pregnancy. These same risk factors may influence the risk of premature mortality in offenders.

However, when considering prominent theories, such as those described within the review of this article, there seems to be a lack of theoretical explanations with sufficient specificity and predictive ability to address and constructively discuss the interplay between health and criminology; especially when compared with earlier attempts to integrate theories to explain offending itself (Farrington 2017). There is a need to utilize Public Health and Social Epidemiological literature (Moffitt 2018). This field of research may provide further evidence, theories, variables and methodologies that need to be utilized within criminological inquiry to better theoretically and empirically explain the relationships between premature mortality and crime (Vaughn *et al.* 2020).

The attempts to 'cross-fertilize' across theories, however, have traditionally centred on the 'back end', emphasizing mental health conditions, substance use/addiction and/or HIV by incarcerated persons (Lanier *et al.* 2015). Additionally, despite racial/ethnic and socioeconomic stratification of crime and delinquency being acknowledged within life-course criminological theories (Sampson *et al.* 2005), such stratification is not explored as a function of early stratification in individual mortality—including health conditions and behaviours/lifestyles. Criminological research exploring mortality risks in relation to offending are (1) relatively infrequent, (2) disconnected and non-systematic (specific mortality risks are often examined in isolation with large variance in definitions), and (3) outside the framework of existing, cross-disciplinary health disparities research (Sampson *et al.* 2005).

Our results, however, do have clear implications for tests of developmental and life-course theories in criminology: their results may be misleading if they do not take account of time at risk of offending. As mentioned, based on the theories of Gottfredson and Hirschi (1990) and Moffitt (1993), it would be expected that LCP offenders would be more extreme than other offenders in their early mortality. However, we found that LCP offenders were not significantly likely to die early. These results are attributable, at least in part, to the truncation by death of the time at risk of offending. The average number of offences and the average criminal career duration were significantly related to ED only when they were expressed as a function of time at risk. This shows the necessity, in testing criminological theories, of taking account of the time at risk of offending.

LIMITATIONS

The CSDD provides a wealth of detailed information about criminal careers and its association with health, over a 50-year follow-up period and with high retention of the original participants. However, the CSDD only contains data on mainly British White, working-class, inner-city males born around 1953, so the results may not be generalizable to women, Black, Asian, suburban, rural, middle- or upper-class people, people born more recently than the 1950s, or those who spent their childhood in other countries. The lack of minority ethnic groups within the CSDD may have also impacted the nature of deaths recorded here. For example, minority ethnic groups have poorer life chances compared to White individuals (Platt 2005; 2011), which may impact on their age of death through various mechanisms (Rogers *et al.* 2019).

Furthermore, because unnatural death was quite rare in the CSDD, it was difficult to delve more deeply into the relationship between offender trajectories and causes of death. One explanation for unnatural deaths being particularly rare may be due to the sample being predominantly White. It is well documented that offenders of colour are more likely to die prematurely (Testa *et al.* 2018; Skinner and Farrington 2020*a*).

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

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