EXECUTIVE SUMMARY

1. 'Adverse childhood experiences' (ACEs) such as psychological, physical, or sexual abuse are often considered together to represent a cumulative burden impacting on later outcomes. Evidence is scarce for ACEs separately, particularly for childhood neglect, and for associated child developmental trajectories likely to affect later outcome.

2. This submission focuses on child neglect and separate forms of abuse in a British birth cohort of about 18,000 individuals followed to mid-life (age 50y), in order to address gaps in evidence on child development and later health and wealth outcomes. One-in-five were identified as having experienced neglect or abuse in childhood, of whom about 10% were identified for neglect and also for psychological abuse, 6% for physical abuse and 1.5% for sexual abuse.

3. Child neglect and abuse were associated with poor developmental trajectories from child to adulthood. Neglect was associated with less favourable physical (slow height growth and fast adiposity gain), emotional and cognitive development and by adulthood, with shorter height, excess adiposity, lower educational qualifications and poorer mental health. All forms of abuse were associated with poorer emotional development and, in adulthood, with poorer mental health. Physical and sexual abuse were also associated with faster adiposity gains and excess adiposity in adulthood. These unfavourable developmental trajectories are important in the immediate term, suggesting the ways in which the lives of individuals are affected whilst growing-up. They are also formative in relation to future health and wealth across adulthood.

4. Child neglect and sexual abuse were associated with less favourable social mobility patterns to adulthood and with lower living standards in mid-life. The burden of adult socio-economic disadvantage, worklessness and living standards associated with child neglect and (mostly sexual) abuse is important for individuals over decades of their life-course and, in terms of costs to society. Child-to-adult links from neglect and abuse to later socio-economic disadvantage, point to a likely detrimental impact on health contemporaneously in mid-life and subsequently into older age.

5. Neglect and all forms of abuse were associated with adult smoking and poor health (blood lipid levels and poor-rated health). In addition, neglect and physical abuse were associated with elevated glucose levels, whilst neglect, sexual and psychological abuse were associated also with poor physical functioning (limitation to perform physical tasks of daily living) at 50y. These mid-adult health measures are key determinants of serious
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disease, disability and death, and are therefore important burdens for individuals and for society, particularly in the context of ageing populations.

6. Evidence pertaining to contemporary adults suggests that child neglect and some forms of abuse generate profound and persisting disadvantage over decades in many health and wealth aspects of adult lives.

1. SPECIFIC CHILDHOOD NEGLECT AND ABUSE EXPERIENCES IN A BRITISH POPULATION COHORT

1.1. 'Adverse childhood experiences' (ACEs) such as psychological, physical, or sexual abuse are associated with many poor outcomes in adult life.

1.2. ACEs are often considered together in relation to later outcomes. Justifications to consider ACEs together are that ACEs co-occur and also, to highlight their cumulative impact, but this approach assumes that all ACEs have comparable effects and common processes (and possible remedies) to outcome.

1.3. Evidence is scarce for specific ACEs separately, particularly for childhood neglect which is often ignored, or for associated childhood developmental trajectories likely to affect later outcome. These are important recognised knowledge gaps; information on specific effects and life-course pathways to outcome could provide clues on what might be done to mitigate long-term impacts.

1.4. The research summarised here addresses some of these gaps in evidence. With a focus on child neglect and forms of abuse (physical, psychological, sexual), our research has charted the physical, cognitive and emotional development of these groups compared to the non-affected population, and their adult wealth and health outcomes.

1.5. This submission draws on a series of studies based on a British population cohort of about 18,000 individuals followed from birth to mid-life, the ‘1958 birth cohort’. With their rich information base, cohorts are the best study design available to track childhood exposures and pathways to adult outcomes, but because their design is observational and not experimental, we cannot infer causality.

1.6. Most (78%) of the population were not identified as having experienced neglect or abuse during childhood, but about 10% were identified for neglect and also for psychological abuse, 6% for physical abuse and 1.5% for sexual abuse. Whilst prevalence varies between different studies, estimates for the 1958 cohort are in line with others[1]. Many individuals (15%) were identified with one form of neglect or abuse, 4% with two forms and 2.7% with 3 or more forms.

1.7 In general, the evidence presented here takes account of multiple forms of neglect or abuse and other early adversities in order to demonstrate the developmental trajectories and long-term health and wealth outcomes associated with specific childhood exposures.

2. CHILD NEGLECT AND ABUSE ARE ASSOCIATED WITH POOR DEVELOPMENTAL TRAJECTORIES FROM CHILD TO ADULTHOOD

2.1 Child neglect and different forms of abuse are associated with less favourable physical, emotional and cognitive development during childhood and adolescence than others.
Unfavourable developmental trajectories matter during childhood and also because they leave individuals vulnerable to poor later outcomes. Poor physical development (slow height growth and fast adiposity gain) is related to increased mortality and ill-health[2,3], whilst poor emotional and cognitive development also link to future health, behaviour and economic detriments[2].

2.2 In terms of physical development, child neglect was associated with shorter height throughout childhood and also in adulthood. The association was stronger during childhood than in adulthood, suggesting some catch-up growth. For the most neglected (about 10%) in the population the estimated height deficit relative to others was up to 1.5cm in childhood and less than 1cm in adulthood[4]. Slower maturation was seen also with markers of pubertal timing, with risk of delayed puberty onset elevated by 33% to 45% in the most neglected males (depending on pubertal indicator) and by 36% in females[5]. Neglect was not associated with higher Body Mass Index (BMI) in childhood, but after a faster rate of gain showed a small excess in BMI in mid-life (0.24 to 0.52kg/m² for men and women at age 50y)[6].

Figure 1: Deficit in average height at ages 7, 11 and 16y and in adulthood associated with child neglect; the 1958 birth cohort study

2.3 In addition, neglect was associated with poorer emotional and cognitive development throughout childhood and adolescence compared to others. For the most neglected (about 10%) emotional symptoms were higher by an estimated 8.4 symptoms at age 16y, and by 5.7 symptoms at age 50y (on child and adult scales as appropriate, range 0-100)[7]. Likewise, cognitive ability was estimated to be 10 points lower at 16y and 2 points lower at 50y (on child and adult scales, range 0-100). Furthermore, neglect was associated with lower qualifications by the end of formal education. As Figure 2 shows, child neglect was associated with an 11-fold risk of no qualifications compared to university level[7].
2.4 Turning now to childhood abuse, and as expected from other research, psychological, physical and sexual abuse were all associated with poorer emotional status throughout childhood than others and the association persisted to 50y. On child or adult scales (range 0-100) as appropriate, emotional symptoms were 2.0 to 8.1 higher across ages 7y to 16y; and 4.9 to 8.3 higher at 50y[7]. Further investigation suggested that the potential for poor mental health to persist or recur across an individual’s life-course was unlikely to explain long-term associations for physical and sexual abuse[8]. In contrast to emotional health, abuse was mostly unrelated to child-to-adult cognitive abilities.

2.5 In terms of physical development, there were associations for physical abuse, and also in females, sexual abuse with adiposity trajectories. During childhood BMI was lower or no different, on average, from the rest of the population, but then showed a faster rate of gain leading to an elevated BMI by 50y. Figure 3 shows this trend for physical abuse. Following this faster BMI gain, physical abuse and (in females) sexual abuse were associated with 34% to 67% higher risks of obesity at 50y[6]. But unlike neglect, abuse was not associated with height, and was mostly unrelated to puberty onset[4,5].
2.6 In summary, child neglect was associated with slower height growth, delayed maturation, but faster adiposity gain during childhood and adolescence than others, and also with poorer emotional and cognitive development. Subsequently by adulthood, neglect was associated with shorter height, excess adiposity, lower educational qualifications and poorer mental health. All forms of abuse were associated with poorer emotional development during childhood and, in adulthood, with poorer mental health. Physical and sexual abuse were also associated with faster adiposity gain and excess adiposity in adulthood, but were mostly unrelated to height and cognitive abilities.

2.7 The unfavourable developmental trajectories associated with child neglect and abuse are important in the immediate term, suggesting the ways in which the lives of individuals are affected whilst growing-up. They are also formative in relation to future health and wealth across the life-course. Representing what epidemiologists refer to as ‘biological embedding’ of early experiences[2], unfavourable developmental trajectories are associated with life-long effects, placing individuals at high risk for future poor outcomes in their adult lives.

3. CHILD NEGLECT AND SOME FORMS OF ABUSE ARE ASSOCIATED WITH UNFAVOURABLE SOCIAL MOBILITY TO ADULTHOOD AND LOWER LIVING STANDARDS IN MID-LIFE

3.1 By early adulthood, child neglect and to some extent abuse, are associated with characteristics that reduce the prospects of a productive and healthy adulthood. These diminished prospects become evident across several important dimensions of adult socio-economic position, worklessness (not in employment, education or training (NEET); long-term sickness absence) and living standards (lacking assets, income-related support, financial insecurity).

3.2 Social mobility is of interest, as improvements in occupational class have a notable influence on life chances. It is important therefore to assess whether child neglect and abuse groups have comparable improvements to their contemporaries. Our study suggested that neglect and sexual abuse (but not other abuse) were associated with social mobility.

3.3 For mobility from family background class to own occupational class, neglect and sexual abuse were associated with a lower risk of upward mobility (moving from a manual to non-manual class) that was about half of that for non-neglect or sexual abuse contemporaries.
Likewise for mobility within adulthood, neglect and sexual abuse were associated with a lower risk (by 39% to 53%) of upward mobility from 23y to 50y. For downward mobility (non-manual to manual class) neglect was associated with more than twofold higher risks for mobility from family of origin and also for own occupational trajectories within adulthood[9].

3.4 Neglect was also associated with worklessness in mid-life (50y), including 43% to 69% higher risks of NEET and long-term sickness absence; similarly, there was a 68% higher risk of poor living standards (lacking assets). As expected, analysis of these associations suggested a likely intermediary role for cognitive ability in adolescence, but less so for emotional status.

3.5 Sexual abuse was associated with mid-life worklessness (80% higher risks of long-term sickness absence) and poor living standards (62% to 86% higher risks of lacking assets, receipt of income-related support, financial insecurity). Similarly, non-sexual abuse (physical, psychological, witnessing) was associated with worklessness and poor living standards. Surprisingly, analysis of these associations suggested that neither cognitive ability nor emotional status in adolescence were important intermediary factors.

3.6 The burden of disadvantaged adult socio-economic position, worklessness and living standards associated with neglect and (mostly sexual) abuse is important for the individuals affected over decades of their life-course and in terms of societal costs. Child-to-adult links from neglect and abuse to later socio-economic disadvantage, point to a likely detrimental impact on health contemporaneously in mid-life and subsequently into older age.

4. CHILD NEGLECT AND SOME FORMS OF ABUSE ARE ASSOCIATED WITH HARMFUL BEHAVIOUR AND WITH POOR HEALTH THROUGH TO MID-LIFE

4.1 Knowledge is emerging only recently on the full impact of child neglect and abuse links with health over the long-term. Yet, from the developmental trajectories associated with neglect and, in some instances with abuse (section 2) we would expect to see effects on health and behaviour over subsequent life-stages.

4.2. Such expectations are borne out for smoking across early to mid-adulthood, with neglect and all forms of abuse associated with higher rates of smoking than other people. As Figure 4 shows, neglect and abuse were associated with higher rates of smoking in young adulthood (48 to 56% vs 33% among others) and subsequently, at age 50y. All neglect and abuse groups showed a trend of decline in the percentage of smokers with advancing age (23y to 50y), but in general this was less pronounced proportionately compared to the decline among others. E.g., the drop for sexual abuse (women) was from 56% to 47% vs 33 to 20% among others[6].
4.3 Evidence for this generation suggests that there are strong associations of child neglect and all forms of abuse with smoking across decades of adulthood. Smoking is known to be a key determinant of health and is therefore likely to make a major contribution to ill-health among these groups. Whereas, differences between neglect or abuse groups and others were less pronounced for heavy alcohol consumption and leisure-time physical inactivity.

4.4 Regarding adult health, neglect was associated with 39% to 48% increased risks of poor health (self-rated, i.e., assessed by the individual) across several adult ages from 23y to 50y[10].

4.5 Associations between child neglect and poor health were confirmed with more objective measures, including poorer blood lipid and glucose levels in mid-life (45y)[11,12]. Analysis of these associations (child neglect with blood lipids and glucose) suggested that adult adiposity, smoking and low social class were likely intermediary factors[12]. Their contribution was expected, because of neglect associations with these intermediary factors (sections 2 and 3) and the research that identifies adiposity, smoking and low social class as key determinants of health.

4.6 In turn, child neglect was associated with a 55% excess risk of poor physical functioning (limitation in the ability to perform physical tasks of daily living) at 50y. The poorer educational qualifications associated with neglect appeared to be an intermediary factor in its association with poor physical functioning[10].

Notes: (1) daily smokers reported currently smoking ≥1 cigarettes a day, (2) ‘others’ are the non-neglect or abuse population. Source: Power et al. 2015[6].
4.7 Abuse associations also included increased risks of poor-rated health across several adult ages, ranging from excess risks at age 50y of 31% for physical abuse, 49% for psychological abuse, and 75% for sexual abuse[10].

4.8 With more objective measures, most forms of abuse were associated with poorer blood lipid levels in mid-life (45y) and, also for physical abuse, with higher blood glucose levels[11,12]. Analysis of these associations suggested that adult adiposity and smoking were likely intermediary factors[12].

4.9 Sexual abuse was associated with a more than twofold excess risk of poor physical functioning at 50y, but key intermediary factors were not identified. A more modest (49%) excess risk of poor physical functioning was observed for psychological abuse[10].

4.10 In summary, child neglect was associated with excess risk of adult smoking, poor blood lipid and glucose levels in mid-life, poor-rated health and poor physical functioning at 50y. For child abuse, all forms were associated with excess risk of adult smoking, poor blood lipid levels and poor-rated health. In addition, physical abuse was associated with elevated blood glucose levels, whilst sexual and psychological abuse were associated with poor physical functioning at 50y. The adult health measures with which neglect and abuse are associated are key predictors of serious disease, disability and death. Specifically, poor-rated health predicts mortality[13], elevated blood lipid and glucose levels predict cardiovascular disease and diabetes[14], and poor physical functioning in adulthood is strongly associated with inability to work, higher levels of dependency and mortality[15-17]. These are important outcomes to consider in terms of the health burden for individuals and for society, particularly in the context of ageing populations.

5. IMPLICATIONS FOR POLICY

5.1 Inevitably when tracking individuals over time, the longer the period of follow-up the better informed we are about long-term outcomes, although a downside is that some childhood conditions (e.g. influences on obesity) may have changed. Importantly, evidence summarised here pertains to today’s adults, and it suggests that child neglect and some forms of abuse generate profound and persisting disadvantage over decades in many health and wealth aspects of adult lives.

5.2 Tracking a population over their lifetime provides valuable insights. From child neglect and abuse we observe a progression from childhood and adolescence impairments in developmental course leading to less healthy adult lives. For example, physical abuse was associated with fast rate of adiposity gain and subsequent elevations in adult blood glucose levels. This life-course progression provides a coherence that bolsters confidence in the research; it also has implications for when and where interventions may be most effective.

5.3 Child neglect and abuse associations with physical, emotional and cognitive development denote childhood detriments that are important in their own right, outwith longer-term impacts, and argues for early intervention. The latter may also offer the best chance to avert a lifetime cascade of subsequent harms.

5.4 However, preventive strategies in adulthood may yield benefits, if it is possible to forestall the accumulation with age of multiple risk factors that affect healthy ageing and longevity. An extensive literature demonstrates increased risk of cardiovascular disease with multiple factors that include short height, adiposity gain and obesity, smoking, lower educational qualifications and occupational class, and elevated blood lipid and glucose levels. Currently, for adults exposed
to neglect and abuse in childhood, associations suggest an accumulation of multiple risk factors for chronic disease with increasing age.

5.5 The child-to-adult links enumerated here sometimes apply to specific childhood adversities. Specificity in associations from observational studies is often taken as providing firmer grounds that associations are causal. Specificity also informs where preventive actions may be beneficial. In this context, there was little evidence for abuse associations with height or cognitive development, but emotional development, subsequent mental health and adult smoking associations were common across all forms of abuse. Sexual abuse associations indicated a particularly damaging outlook across many facets of adult health and living standards.

5.6 Pervasive associations for child neglect may point to alternative underlying explanations, possibly genetic causes. Other research suggests that such alternatives may provide only partial explanations, e.g., follow-up of severely deprived groups over an extended period of early-life demonstrates many deficits in young adulthood[18]. The widespread harms associated with child neglect highlights the urgency of early interventions.

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REFERENCES