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Social and Environmental Determinants of the Health of People with Disabilities

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Throughout the life course people with disabilities have poorer physical and mental health, and die sooner, than their non-disabled peers (World Health Organization and the World Bank, 2011). A key question for science, policy and practice is whether this difference represents an inequity in health. Health inequities are '*avoidable inequalities in health between groups of people … [that] … arise from inequalities within societies. Social and economic conditions and their effects on people's lives determine their risk of illness and the actions taken to prevent them becoming ill or treat illness when it occurs*.'[1] Health inequities are avoidable, unjust and violate human rights.

Growing evidence suggests that the inequality in health status between people with and without disability results, in part, from the increased risk of people with disabilities being exposed to some very well-established social and environmental determinants of poor health (Emerson et al., 2011; Emerson et al., 2012; Krahn, Walker, & Correa-De-Araujo, 2015). As such these inequalities represent, at least in part, inequities.

Our aims for this chapter are to illustrate some of the things we know about the: (1) extent to which people with disabilities are more, or less, likely to be exposed to well-established social and environmental determinants of poor health in childhood and as working age adults; and (2) impact that such exposures have on their health. We focus on earlier stages in the life course because the foundations for healthy (and unhealthy) ageing are often laid down in childhood and earlier adulthood (e.g., Ploubidis, Benova, Grundy, Laydon, & De Stavola, 2014). Readers, however, do need to be keep two caveats in mind when thinking about the material included in the following sections. First, it is not possible within the constraints of a single chapter to provide a comprehensive overview of these two issues. We have been selective in our choice of issues on which to focus and on the evidence we cite. Regarding the latter, we have prioritised evidence derived from studies that have used samples that are likely to be representative of national populations. Second, we have included evidence from several countries. However, great care needs to be taken when making comparisons between countries, especially given the variations between countries in how disability is defined and measured.

Background: Social and Environmental Determinants of Health

For over 150 years epidemiologists have been studying the association between living conditions and health (Kreiger, 2011). Over that time, it has become increasingly apparent that many of the inequities in health that we see (whether between different countries or between different groups within countries) '*arise from the societal conditions in which people are born, grow, live, work and age, referred to as social determinants of health. These include early years' experiences, education, economic status, employment and decent work, housing and environment, and effective systems of preventing and treating ill health*' (Preamble to the Rio Political Declaration on Social Determinants of Health, adopted by UN Member States in October 2011, World Health Organization, 2011). It has also become increasingly apparent that making progress in reducing health inequities within countries will depend on reducing the probability that marginalised/vulnerable groups (such as people with disabilities) will be exposed to social and environmental determinants of poorer health (World Health Organization, 2008, 2011; World Health Organization Regional Office for Europe, 2014).

Most approaches to synthesising knowledge about how social determinants impact on health focus on the extent to which social stratification leads to differential: (1) exposure to material and psychosocial hazards that are detrimental to well-being; and (2) vulnerability or resilience to the

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[1] http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/

impact of such exposures on health and well-being (Diderichsen, Evans, & Whitehead, 2001; Kreiger, 2011; Marmot et al., 2008). Social stratification refers to the hierarchies that exist in all societies that are characterised by differences in access to key resources such as wealth, power and prestige. Socio-economic position (SEP) and socio-economic status are terms commonly used to describe social stratification. Most of the known social and environmental determinants of health show a social gradient in the risk of exposure. The further one moves down social stratification hierarchies, the more likely it is that people will be exposed to these social and environmental determinants of (poorer) health. Social gradients are evident for such diverse risks as exposure to income poverty, poor housing conditions, unemployment, material hardship, social exclusion, discrimination, domestic and community violence, tobacco smoke and outdoor air pollution (Berkman, Kawachi, & Glymour, 2014; Marmot & Wilkinson, 2006). Position in the social hierarchy also influences access to resources that build resilience in the face of adversity. As described by Public Health England, '*resilience is not an innate feature of some people's personalities. Resilience and adversity are distributed unequally across the population and are related to broader socioeconomic inequalities which have common causes - the inequities in power, money and resources that shape the conditions in which people live and their opportunities, experiences and relationships. Those who face the most adversity are least likely to have the resources necessary to build resilience. This "double burden" means that inequalities in resilience are likely to contribute to health inequalities*' (Public Health England, 2014). We will use this simple framework to structure the rest of this chapter.

Growing Up with a Disability

Overall, children with a disability are more likely than other children to be brought up in families with lower SEP, including families living in poverty (Banks, Kuper, & Polack, 2017; Spencer, Blackburn, & Read, 2015; World Health Organization and the World Bank, 2011). Families supporting a child with disability are more likely to become poor, to spend longer living in poverty and are less likely to escape from poverty (Shahtahmasebi, Emerson, Berridge, & Lancaster, 2011). Families living in poverty are more likely to be exposed to a wide range of specific material and psychosocial hazards including: poor housing conditions, parental unemployment, parental mental health problems, family bereavement, family separation/divorce, parental substance abuse, domestic and community violence, second hand tobacco smoke and outdoor air pollution (Jones et al., 2012; World Health Organization and the World Bank, 2011). The risk of exposure to a diverse array of adversities is illustrated in Table 1 for 14-year-old adolescents with and without disabilities growing up in the UK.

Children, Disability and Poverty

While different countries measure child disability and poverty in different ways, disabled children are more likely to be growing up in poverty than their peers.

- In the UK in 2008/9, 40% of disabled children were living in poverty compared with 29% of non-disabled children (The Children's Society, 2011)
- In the USA in 2017, 28% of disabled children were living in poverty compared with 18% of non-disabled children (American Fact Finder, 2018)

Why is there a link between family SEP and childhood disability? First, many of the health conditions associated with childhood disability are more likely to affect children of families with lower SEP. This is particularly true for childhood disability associated with intellectual disability, activity-limiting asthma, psychological disorders and sensory impairments (Spencer et al., 2015). Second, it has been argued that having a child with a disability may lead to downward social mobility, lowering family SEP due to parents (typically mothers) not working or working fewer hours and/or the extra financial costs associated with raising a child with disability. However, evidence from longitudinal studies suggests that, in the UK at least, these effects are small (Shahtahmasebi et al., 2011).

TABLE 1: PERCENTAGE OF 14-YEAR-OLD ADOLESCENTS WITH AND WITHOUT DISABILITIES GROWING UP IN THE UK EXPOSED TO CHILDHOOD ADVERSITIES

ADVERSITY	Adolescents with Disability	Adolescents without Disability	p
Income poverty	71.2%	56.1%	<0.001
Material hardship	72.1%	51.3%	<0.001
Household with no adult working	69.6%	52.3%	<0.001
Mother has possible mental illness	55.4%	35.9%	<0.001
Parental substance abuse	22.0%	20.9%	n.s.
Domestic violence	11.1%	9.2%	n.s.
Parental separation or divorce	53.8%	40.8%	<0.001
Death of a parent	2.2%	1.9%	n.s.
Separated from family	3.8%	2.1%	<0.05
Has been homeless	9.5%	6.1%	<0.01
Second hand tobacco smoke in home	67.7%	56.9%	<0.001
Lived in area with high level of social deprivation	38.1%	33.8%	<0.05
Lived in area with high levels of outdoor air pollution	43.3%	43.7%	n.s.
Bullied at school (parental-report)	29.0%	11.5%	<0.001
Bullied at school (self-report)	27.5%	15.4%	<0.001
Not exclusively breast fed at 3 months	83.0%	77.3%	<0.01
Childhood accident involving hospital admission	12.0%	8.6%	<0.01

Source: Analysis of waves 1-6 of the UK's Millennium Cohort Survey (For details of some of measures, see Public Health England, 2015)

In addition to the link between childhood disability and low family SEP, children with disabilities are likely to experience discrimination and harassment based on their disability. Specifically, they are more likely to be bullied at school, be socially excluded and have fewer friends (Arculi, Emerson, & Llewellyn, 2018, online; Emerson & Spencer, 2015; Kavanagh et al., 2018; Pinquart, 2017; Sentenac et al., 2013). There is abundant evidence that exposure to social and environmental adversities in childhood has significant and potentially long-lasting effects on health (Shonkoff, 2016; World Health Organization, 2008; World Health Organization Regional Office for Europe, 2014). Evidence specific to children with disabilities is much less developed. However, recent research has indicated that, among adolescents with a disability, being a victim of bullying is associated with higher rates of emotional difficulties, poorer self-rated health, lower life and school satisfaction (Arculi et al., 2018, online; King et al., 2018, online; Sentenac et al., 2013).

The Living Conditions of Working Age Adults with a Disability

Poverty and Low Socio-Economic Position

Living in poverty has long been known to be associated with increased risk of mortality and morbidity (e.g., Kreiger, 2011; Marmot et al., 2008; World Health Organization and Calouste Gulbenkian Foundation, 2014; World Health Organization Regional Office for Europe, 2014). In addition, studies undertaken in high-income countries have consistently reported that working age adults with disabilities are significantly more likely to be living in poverty than their non-disabled peers (e.g., Brucker & Houtenville, 2015; Emerson et al., 2018; Heslop & Emerson, 2018). The link between poverty and disability is also evident in low- and middle-income countries (Banks et al., 2017). Despite these strong associations, surprisingly few studies have investigated the association between poverty and health among working age adults with disabilities. The scant evidence that does exist suggests that exposure to poverty among people with disabilities is associated with poorer self-rated health (e.g., Emerson & Hatton, 2008; Emerson, Hatton, Baines, & Robertson, 2016).

Disability and Poverty

Working age adults with disabilities are more likely to live in poverty than their peers.

- In Australia in 2016, 38% of working age adults with disabilities experienced one or more financial stressor, compared with 18% of non-disabled working age adults (Emerson et al., 2018)
- In the UK in 2012, 30% of working age adults with disabilities were living in poverty compared with 13% of non-disabled working age adults (Source: Analysis of UK's 2012 Poverty and Social Exclusion Survey, see Heslop & Emerson, 2018)
- In the USA in 2017, 26% of working age adults with disabilities were living in poverty compared with 11% of non-disabled working age adults (American Fact Finder, 2018)

The association between poverty and health appears to be mediated, in part, by the association between poverty and the probability of engaging in some riskier health behaviours (e.g., smoking, physical inactivity). Given the association between poverty and disability, it is not surprising that smoking rates are higher among people with disabilities than among their non-disabled peers (Australian Institute of Health and Welfare, 2016; Courtney-Long, Stevens, Caraballo, Ramon, & Armour, 2014; Emerson, 2018 online), and that people with disabilities are more likely to be physically inactive (Australian Institute of Health and Welfare, 2016).

Employment

Employment is an important social determinant of health, with a well-established evidence-base demonstrating negative effects of unemployment, employment insecurity and poor psychosocial job quality on physical and mental health (Marmot et al., 2008).

Disability and Employment

Working age adults with disabilities are more likely to be unemployed or not in the labour force than their peers.

- In Australia in 2016, 41% of working age adults with disabilities were not in the labour force compared to 16% of non-disabled working age adults; of those in the labour force, 13% of adults with disabilities were unemployed compared with 5% of non-disabled adults (Emerson et al., 2018)
- In the UK in 2012, 51% of working age adults with disabilities were not in the labour force compared with 17% of non-disabled working age adults; of those in the labour force 9% of adults with disabilities were unemployed compared with 7% of non-disabled adults (Source: Analysis of UK's 2012 Poverty and Social Exclusion Survey, see Heslop & Emerson, 2018)
- In the USA in 2017, 58% of working age adults with disabilities were not in the labour force compared with 19% of non-disabled working age adults; of those in the labour force 12% adults with disabilities were unemployed compared with 5% of non-disabled adults (American Fact

Working age adults with disabilities are more likely to be unemployed or not in the labour force than those without disabilities (see box). A comparison of countries in the Organization for Economic Co-operation and Development using data from 2003 to 2006 demonstrated large inter-country variation in employment rates between people with and without disability, ranging from 70% lower for people with disability in South Africa and 62% in Japan, to only 8% lower in Malawi and 19% in Switzerland (World Health Organization and the World Bank, 2011). There is also evidence that people with disabilities are less likely to enjoy optimal working conditions (Milner, Krnjacki, Butterworth, Kavanagh, & LaMontagne, 2015) and more likely to be underemployed (Milner et al., 2017) and underpaid (Hogan, Kyaw-Myint, Harris, & Denronden, 2012).

There is some evidence that poor employment outcomes impact on the health of people with disabilities. The negative mental health effects of becoming unemployed, economically inactive or underemployed have been found to be greater for people with a disability compared to those without (Milner et al., 2017; Milner, LaMontagne, Aitken, Bentley, & Kavanagh, 2014). For young people who acquired a disability, one of the determinants of poor mental health trajectories was unemployment (Kariuki, Honey, Emerson, & Llewellyn, 2011). Finally, a study examining the association between disability acquisition and mental health found evidence that the deterioration in mental health was found to be predominantly explained by material socioeconomic factors including employment (Aitken, Simpson, Gurrin, Bentley, & Kavanagh, 2018). These findings highlight the importance of employment for the health of people with disabilities.

Housing Conditions

Disability and Housing

Working age adults with disabilities are more likely to live in lower quality housing than their peers.

- In Australia in 2016, 24% of working age adults with disabilities reported that they could not pay their mortgage, rent or bills on time due to a shortage of money, compared with 12% of their non-disabled peers (Emerson et al., 2018)
- In the UK in 2012, 14% could not afford to keep their home adequately warm compared with 5% of non-disabled working age adults (Heslop & Emerson, 2018)

People with disabilities face problems in finding adequate, accessible and affordable housing. Housing contributes to the disabling or enabling environment experienced by people with disabilities. Inappropriate housing can represent a major barrier to independent living and social inclusion, with consequences to health and well-being. People with disabilities are particularly vulnerable to experiencing poor housing outcomes because of the compounding effects of institutional reform, low employment rates, and low income. In addition, people with disabilities may have specific accommodation requirements, which limit their housing options (Beer & Faulkner, 2009).

In Australia, people with disabilities have been shown to be at higher risk of poor housing outcomes. They are more likely to experience homelessness (Beer & Faulkner, 2009), housing insecurity (Kavanagh et al., 2015), housing unaffordability and poor-quality housing, and live in public housing (Aitken et al., in press); and there is evidence that housing inequities are increasing over time (Disability Housing Futures Working Group, 2016). Many people with disabilities live in institutions, group homes, or in nursing homes because of lack of appropriate housing (Wiesel et al., 2015). In the USA, households in which one or more household member had a disability were less likely to own their own homes compared with other households (Wang, 2005), and were more likely to experience housing unaffordability, severe housing cost burdens, housing poverty and housing assistance (White, Peaslee, & LaQuatra, 1994). In the UK, people with disabilities were more than twice as likely as non-disabled people to live in social housing, less likely to be homeowners, and more likely to report poor suitability and adequacy of housing (Papworth Trust, 2011).

There is little research on the association between housing and health outcomes relative to disability. There is evidence suggesting that, for people with psychosocial disability, choice of housing type is associated with increased quality of life (Welch & Cleak, 2018), and housing insecurity and frequent moves is associated with poorer health (Kyle & Dunn, 2008). There is also evidence that the negative effect of disability acquisition on mental health is greater for people living in unaffordable housing (Kavanagh et al., 2015).

Exposure to Violence

Exposure to violence can have a detrimental impact on an individual's physical and mental health. A growing number of studies have reported that working age adults with disabilities are more likely to be exposed to violence, including sexual and partner violence, interpersonal violence outside of the home and hate crime; violence directed towards a person because of their disability' (Breiding & Armour, 2015; Emerson, Krnjacki, Llewellyn, Vaughan, & Kavanagh, 2016; Emerson et al., 2018; Emerson & Roulstone, 2014; Harrell, 2017; Hughes et al., 2012; Krnjacki, Emerson, Llewellyn, & Kavanagh, 2016). Very few population-based studies have investigated the association between exposure to violence and health among working age adults with disabilities. The limited evidence that does exist suggests that exposure to interpersonal violence is associated with poorer health and more risky health behaviours (Mitra & Mouradian, 2014).

Disability and Violence

Working age adults with disabilities are more likely to be exposed to violence than their peers.

- In Australia in 2016, 3% of working age adults with disabilities reported having been physically assaulted in the previous 12 months, compared to 1% of non-disabled working age adults (Emerson et al., 2018)
- In the UK between 2009 and 2011, 5% of working age adults with disabilities were the victims of violent crime, compared to 4% of non-disabled working age adults (Emerson & Roulstone, 2014)
- In the USA between 2011 and 2015, 5% of working age adults with disabilities were the victims of violent crime, compared to 2% of non-disabled working age adults (Harrell, 2017)

Discrimination

A substantial body of research suggests that exposure to overt acts of discrimination may be detrimental to physical and mental health (Krieger, 2014). Most of the evidence is from studies of the association between exposure to racial discrimination and health status in the USA. However, there is some limited evidence that exposure to discrimination based on non-racial characteristics (including disability) may have a stronger association with poor health than exposure to racial discrimination (Alvarez-Galvez, 2016; Du Mont & Forte, 2016). The few population-based studies that have investigated the association between disability-based discrimination and health have reported that exposure to disability discrimination is associated with poorer self-reported health (Alvarez-Galvez, 2016; Du Mont & Forte, 2016; Emerson, 2010; Krnjacki et al., 2018; Sutin, Stephan, Carretta, & Terracciano, 2015), greater psychological distress (Emerson, 2010; Krnjacki et al., 2018; Wamala, Bostrom, & Nyqvist, 2007) and lower life satisfaction (Sutin et al., 2015).

Disability and Discrimination

Working age adults with disabilities are more likely to experience discrimination than their peers.

- In the UK between 2009 and 2011, 26% of working age adults with disabilities reported being discriminated against in the previous 12 months compared to 9% of non-disabled working age adults (Source: Analysis of UK's Life Opportunities Survey, see Emerson & Roulstone, 2014)
- In 2015, 14% of Australians with disability reported disability-based discrimination in the previous year (Krnjacki et al., 2018).

Conclusions and Future Directions

Future Research Priorities

In the preceding sections we have briefly summarised what is known about the: (1) extent to which children and working age adults with disabilities are exposed to well-established social determinants of poorer health; and (2) associations that such exposures have on health for people with disabilities. Below, we outline three priorities for future research.

Expand the range of social determinants and settings studied

While increasingly robust evidence is becoming available on the extent to which people with disabilities are exposed to some well-established social determinants of health, our knowledge on other social and environmental determinants (e.g., social isolation, aspects of the physical environment) is much more limited.

The physical environment, the scale, form and function of areas (including the street network, destinations and open spaces), is an important determinant of health due the extent to which it facilitates, or restricts, access to opportunities. How areas are designed influences how people behave, and in-turn, their health. For example, mobility is important for being able to access education, employment, and leisure opportunities (World Health Organization, 2008), all of which are social determinants of health. We have long-written about the importance of a supportive physical environment, for example, through universal design and its principles (Government of Ireland, 2005). However, more work needs to be done to understand whether and to what extent people with disability are differentially exposed to physical environment characteristics needed for health-enhancing opportunities (and whether this differs between and within countries). And while intuitively it is discernible that people with disability are likely to be differentially vulnerable to physical environments with limited health-enhancing attributes, we need better evidence that quantifies the extent to which these environments limit the social determinants of health of people with disability, and the overall costs to society.

In addition, virtually all the evidence we have cited is derived from cross-sectional population-based studies undertaken in high-income countries. There is a pressing need to expand research in the world’s low- and middle-income countries, where the majority of people with disabilities live (World Health Organization and the World Bank, 2011).

Increase our understanding of vulnerability/resilience

There is abundant evidence from general population-based studies (which are likely to include a significant proportion of people with disabilities) that exposure to the social determinants described in the previous sections has significant and potentially long-lasting effects on health (e.g., Kreiger, 2011; Marmot et al., 2008; Shonkoff, 2016; World Health Organization, 2008; World Health Organization and Calouste Gulbenkian Foundation, 2014; World Health Organization Regional Office for Europe, 2014). Evidence that specifically relates to health impacts for people with disabilities is much more limited and all too often is based on cross-sectional studies, which cannot provide evidence of causality.

There is no good reason to think that people with disabilities would be immune to the effects of exposure to such adversities. However, given that people with disabilities are less likely to have access to the kinds of resources that promote resilience in the face of adversity (e.g., wealth, power, social support, access to timely and effective healthcare), it may be expected that exposure to adversities would have a greater impact on the health of people with disabilities (cf., Emerson & Hatton, 2007).

Increase our understanding of intersectionality

We know relatively little about the extent to which exposure to social determinants (and the impact of such exposure) varies with other potentially important characteristics of people with disabilities (e.g., gender, ethnicity, age, sexual orientation, religion, severity of disability, and the type of health condition or impairment associated with their disability). The limited literature which has addressed these issues indicates that both gender and type of health condition/impairment can have marked effects on the probability of exposure to some social determinants, such as particular types of violence and socio-economic disadvantage (e.g., Hughes et al., 2012; Kavanagh et al., 2015).

Implications for Policy and Practice

Although there is overwhelming research evidence showing that the social determinants of health are more important for health outcomes than access to health services, this research has not necessarily translated into effective policy action. This is evident in disability, where health recommendations and policies typically focus on health services (Stein, Stein, Weiss, & Lang, 2009; United Nations, 2006) and neglect the broader social determinants of health (Emerson et al., 2011). The wider population health literature has identified “lifestyle drift” as a significant barrier to effective policy action on the social determinants of health (Baum, 2011; Popay, Whitehead, & Hunter, 2010; Raphael, 2008; Whitehead, 2012). This term has been used to describe how policy initiatives aimed at addressing health inequalities often start with a social determinants (upstream) focus but then shift over time to centre mainly on (downstream) individual lifestyle factors, as well as a general trend towards governments investing more in individualistic approaches (Baum, 2011; Hunter, Popay, Tannahill, & Whitehead, 2010). This can be seen in the shift towards personalised funding models for disability (Askheim, 1999; Needham, 2016), such as Australia’s National Disability Insurance Scheme which emphasises “choice and control” for individuals in the services they use rather than governments implementing policies aimed to address the broader social determinants (Carey, Malbon, Reeders, Kavanagh, & Llewellyn, 2017).

Sociological theories such as the residualistic conversion model have recently been applied to understanding how to manage lifestyle drift (Carey, Malbon, Crammond, Pescud, & Baker, 2017). This model proposes that if health issues are maintained in the social sphere by framing them as affecting the whole of society rather than just certain ‘vulnerable groups’ (Frohlich & Potvin, 2008; McLaren & McIntyre, 2014) then ‘upstream’ policy action should happen more easily (Carey, Malbon, Crammond, et al., 2017). Public pressure can ensure governments accept the political nature of a social problem, thereby keeping it in the political sphere and making it more likely that intersectoral attempts will be made to solve it at a government level (Jamrozik, 1998). Policy process theories such as Kingdon’s Multiple Streams Approach (Kingdon, 1995) and the Advocacy Coalition Framework (Jenkins-Smith, Nohrstedt, Weible, & Sabatier, 2014) show how groups acting together as policy entrepreneurs to promote a particular idea or agenda are instrumental in shaping such policy outcomes. Disability advocacy groups could connect with each other as well as other social service peak bodies to work together to promote the message frame that social determinants of health affect the whole of society. Coordinated pressure group campaigns using appropriate political messaging could enable governments to view social determinants such as housing and social exclusion as problems which are larger social issues, rather than just specifically affecting people with disability.

More nuanced approaches which combine universal (whole of society) and targeted policies that bring together upstream and downstream approaches could also be utilised and these have direct application for disability and health policy. A framework developed by Carey, Crammond, and De Leeuw (2015) shows how best to strike a balance between universal approaches supporting fairness and equity alongside catering for specific groups with differing levels of risk and need. This keeps upstream (social determinants) action in place but still allows for needs of particular social groups to be met where required (Carey & Crammond, 2017). Action on social determinants becomes the responsibility of federal governments and smaller targeted programs are run at a community/local level to ensure they are context-specific and do not disturb the implementation of universal approaches (Carey et al., 2015). An example of this would be local governments developing plans to create disability inclusive environments such as local transport infrastructure and accessible buildings.

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