A longitudinal analysis of disability-related interpersonal violence and some implications for violence prevention work

**Abstract**

This paper explores the extent to which disabled individuals experience interpersonal violence due to victimization. Data on people injured by violence was collated directly from the Accident and Emergency Units in hospitals. High frequency daily data was obtained from computerized records of 26 major Accident and Emergency departments in London for each day throughout the year of 2016. The final sample consisting of 408,000 observations. A fundamental distinction of our research lies in applying the Generalized Method of Moments system panel estimator to our sample. This makes our empirical estimates robust to endogeneity and joint determination unlike previous empirical research in this area. Data analysis provides strong evidence confirming the victimization of people with disabilities and the necessity to focus on disability equality in violence prevention work.

**Keywords:** disability, interpersonal violence, human rights, Generalized Method of Moments, policy.

**Introduction**

**Despite the reconceptualization of disability as a human rights issue (UN 2008),** people w**i**th disabilities are still disproportionally victimized and experience violence (Emerson and Roulstone 2014; Ralph et al 2016; Mikton and Shakespeare 2014). Violence has been manifested in varied forms and guises ranging from physical, sexual, psycho-emotional, cultural and systemic forms, and experienced in mutually reinforcing and cumulative ways (Goodley and Runswick-Cole 2011). Apart from their symbolic and psycho-emotional effects, violent acts result in injuries and chronic illnesses that adversely affect the quality of life of disabled individuals and raise serious concerns about public health policy constitution and dissemination (Marge 2011; WHO 2011).

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Given the importance of using the notion of ‘difference’ as a means of exploring the ways in which the intersection of disabling social ecologies and practices precipitate violent and abusive behaviours linked to disability (e.g Ralph et al 2016), it is worth noting that issues of disability equality to prevent violence against people with disabilities seems to be absent from the WHO agenda. This is in direct contrast to an explicit focus on promoting gender equality to prevent violence against women (e.g WHO, 2009)

A disability perspective in violence prevention work infers the imperative of promoting disability equality as a means of preventing violence. This can be achieved by addressing binary perspectives of normality and abnormality that legitimizes the subordinate positioning of individuals with disabilities based on their presumed deviation from an arbitrarily fabricated ‘able-bodied order’(Campbell 2009). Such an acknowledgement attests to the value of and promoting and intersectionality-based policy analysis framework (IBPA), to challenge social hierarchies and structural inequalities that are accountable for interpersonal violence. An IBPA framework is explicitly concerned with asking transformative questions about the shortcomings of existing policies, and has the potential to facilitate policy changes and collaboration amongst diverse policy units (Clark 2012, Hankivsky 2012), with a view to dealing with issues of disability- related violence in effective and socially-just ways.

These questions relate, for instance, to the extent to which education policies and practices address and prohibit disability stereotypes. Schools have a pervasive impact on shaping young people’s conceptualizations and encounters with ‘disability as difference’ perspectives and constitute discursive spaces where ‘normality is learned’ (McLaughlin et al 2017:59) and is responsible for breeding disability-related violence (Chatzitheohari et al 2016).

In view of the above considerations, it is not surprizing that a significant body of research provides consistent evidence to document strong associations between violence and disability (e.g Harrell, 2016; Hughes et al 2012; Hughes et al 2011; Krnjacki et al 2015; Marge 2011). Other minority statuses linked to a disabled person’s racial, gendered, sexual and classed characteristics have also been empirically reported to increase the risk of disability-related interpersonal violence (e.g van der Heijden et al 2016; Olofsson et al 2014)

Tackling disability-related interpersonal violence is a human rights issue (see article 18, UNCRPD) that needs to be prioritized and dealt with in systemic, evidence-based and effective ways. Beyond rhetorical proclamations aligned with the rights-based stipulations of the UNCRPD, signatory nation states need to provide up-to-date empirically validated information on the ways in which disability rights are promoted and protected (see Article 35 of UNCRPD). The provision and constant updating of national data on disability-related violence is an imperative that needs to be constantly monitored and reviewed (Marge 2011) to document progress and to formulate and implement intersectionality-based violence prevention policies and practices, which focus on public health and other policy implications of using a ‘disability perspective’ in violence prevention work. As Mikton et al (2014:3210) point out, a public policy approach to violence against people with disability ‘begins with understanding the magnitude, distribution and consequences of the problem’.

The formulation of violence prevention policies and practices presuppose an understanding of the extent to which disabled individuals experience violence (Hughes et al 2012), as well as an understanding of the intricate web of dynamics that put disabled individuals at a higher risk of experiencing social conflict and interpersonal violence (Marge 2011).

Despite the availability of studies that try to establish links between violence and disability, Olofsson et al (2015:1682) point out that ‘even in high-income countries, data on prevalence and odds ratios for violence exposure for people with disabilities are lacking’ For instance, Hughes et al’s (2012) metanalysis of 26 studies that met eligibility criterial and sought to explore the relationship between violence, their data ware limited to 21 557 individuals with disabilities.

Apart from the dearth of adequate data on disability-related violence, existing studies are reported to have methodological weaknesses, while there is a lack of studies using high-quality population-based studies (Hughes et al 2012; WHO 2014; Marge 2011; Mikton and Sheakespeare 2014). As far as the link between disability and physical violence is concerned, most of these studies could not distinguish whether disability was the result of violence or it constituted a risk-factor for being subject to violence (Hughes et al 2012; Mikton and Sheakespeare 2014). Simultaneously, Mikton and Shakespeare (2014:3057) suggest that apart from the weak methodological quality of most studies, these studies do not provide data on specific types of disability and specific types of violence. Along similar lines, Hughes et al (2012) suggest that these studies have gaps not only in the type of disability they address but also in the type of violence.

These are major weaknesses in trying to understand the extent to which individuals with disabilities are at higher risk of being subject to interpersonal violence. This information is crucial in order to develop a public health policymaking approach to preventing violence against disabled people (Hughes et al 2012; Mikton et al 2014) and, subsequently contribute to the improvement of the material life circumstances experienced by individuals with disabilities (see Oliver 2002).

Even though our data do not contain information on the type of the self-reported disability, they contain observations based on 93,840 individuals with disabilities- this is a significantly larger database compared with prior studies ( Hughes et al 2012, Krnjacki et al 2015; Khalireh et al 2013; Marge 2011), and they provide evidence of actual inflictions of violence resulting to physical injuries reported by AE departments.This is significant because Mikton et al (2014) and Highes et al (2012) point to the lack of studies using high-quality population-based studies to explore actual violence. For examples Mikton et al (2012) conducted a meta-analysis of the effectiveness of interventions to prevent and to respond to violence against persons with disabilities using 10 studies which, according to their assessment criteria (see QATQS), these studies were considered ‘weak’ as they measured risk factors associated with violence and not actual violence as an outcome. The latter could have been measured if these studies, according to Mikton et al (2014: 3226) had data on actual violence that could be either ‘self-reported or collated ‘from police, social work or other official records’.

At the same time, our study overcomes the prevalent problem of high levels of non-response manifested in all population-based studies that cannot determine whether ‘non-respondents would have answered fairly similarly to those who did not answer’ (Olossof et al 2015:1682). Based on our data on actual violence, following up studies can evaluate the impact of violence prevention interventions in the light of new empirical evidence (Mikton et al 2014). As the National Council on Disability (2007:3) highlighted, ‘sound public policy, resource allocation, and program development must be informed by current, scientifically valid data’.

In this paper we also contribute to the previous research in the following ways. First, we are the only study to analyse the impact of the disability of an individual and actual physical violence on a daily basis. The longitudinal character of our research mitigates some of the shortcomings of cross-sectional designs that have been exclusively used to explore the prevalence of violence and relationship between impairment and violence. (Olofsson et al 2015) We do this by collecting data from Accident and Emergency units located in London on each day throughout the year of 2016. Preceding research was conducted on a cross sectional level where you could not observe time series trends. We have a very large dataset with 365time periods, a total number of observations of 408,000 with 93,840 observations classified as disabled and 314,160 classified as non-disabled individuals. This is a significantly larger high frequency dataset compared with prior studies (Hughes et al 2012, Krnjacki et al 2015; Khalireh et al 2013; Marge 2011).

The second contribution of our study is on the methodology used to empirically examine the relationship between violence and the disability of an individual. Unlike prior research we overcome contemporaneous correlation, endogeneity and jointly determination of the violence injury rate and the disability of an individual by employing the Generalized Method of Moments (GMM) system panel estimator established by Blundell and Bond (1998) on our data. This makes our empirical estimates robust and therefore more reliable than the previous empirical research in this area.

The rest of the paper is organised as follows. The following section discusses the econometric specification; Section 3 discusses the dataset; Section 4 presents the empirical results; and Section 5 summarises and concludes.

**2. Methodology**

**2.1 Econometric Specification**

In order to conduct our empirical analysis, we model the relationship between the daily violent injury rate (V) and the disability of individuals by estimating the following equation:

(1)

Where *i* represents the individuals in our sample and *t* denotes the daily time period;  captures the time-invariant unobserved violent injury rate individual-specific fixed effects (e.g., differences in the injury rate of individuals independent of disability, the age and ethnicity of an individual), and the  captures the unobservable individual-invariant time effects (e.g., changes in disability benefits that affect the association between the disability and the rate of violence for all individuals). The empirical relationship between disability and the violent injury rate of individuals is captured by the dummy variable Di. The dummy takes a value of 1 if the individual suffers from a form of disability and 0 otherwise. We also include the price of alcohol as a control variable because Matthews et al (2006) find a negative relationship between the price of alcohol and violence. Pit is the price of alcohol that each individual pays at each time period.

We also estimate two other versions of equation (1) in order to provide some insight into the causality of the association between disability and violence of individuals. We achieve this by distinguishing if the disabled individuals are the aggressors or the victims of the incident that results in the injury. This is accomplished econometrically by changing the definition of the dummy variable explained in the previous paragraph. In the first model, we capture if disabled individuals are the aggressors by assigning the value of 1 if the individual is the aggressor and 0 otherwise in the dummy variable. In the second model, we capture if disabled individuals are the victims by assigning the value of 1 if the individual is the victim and 0 otherwise in the dummy variable.

In order to formally test the explanatory variables for endogeneity, a Hausman (1978) test for the hypothesis that the explanatory variables are strictly exogenous is performed. If the null hypothesis is rejected, it leads to the conclusion that the explanatory variables in equation (1) are endogenously determined. The Hausman test rejects the null hypothesis at all conventional significance levels.[[1]](#footnote-1)

In order to accommodate endogeneity and the possibility of joint determination we employ a Generalized Method of Moments (GMM) system of equations in first differences and levels to estimate equation (1).[[2]](#footnote-2) The estimation of the systems of equations simultaneously using the GMM system should be i) asymptotically efficient due to non-restrictive assumptions about error autocorrelation and heteroscedasticity (Biorn and Klette 1999), ii) accommodate the explanatory variables being jointly determined with individuals’ injury rates, iii) control possible relationships between the explanatory endogenous variables and the individual injury rates.

This system estimator combines the standard set of transformed equations in first differences (used in the GMM single equation estimator) with an additional set of equations in levels. The first set of transformed equations uses the lag levels as instruments and the level equation uses the lagged first differences as instruments. The first set of transformed equations continues to use the lag levels as instruments. The level equation, on the other hand, uses the lagged first differences as instruments. Their validity is based on the following two moment conditions:[[3]](#footnote-3)



Where is a vector of the explanatory variables, and represents the lag structure in the econometric model.[[4]](#footnote-4)

**3. Data**

We collected the data on people injured by violence directly from the hospitals. The data was gathered on a daily basis from computerized records for each day throughout the year of 2016. 26 major Accident and Emergency departments in London took part in our study[[5]](#footnote-5). Each department has electronic records on whether the injury is caused by accident or by interpersonal violence, obtained from police records. Individuals self-report if they are disabled or not. Our dataset does not distinguish if the disability is physical or mental.

Victims and Aggressors of the event that leads to the injury are obtained from the Metropolitan Police reports. Following Matthews et al (2006) we proxy the price of alcohol using the price of beer. We obtain daily data on the price of beer by taking the average price of the different brands of beer from all the major supermarkets in the United Kingdom. The alcohol data is gathered from the ‘my supermarket website’ on each day during the entire year of 2016.[[6]](#footnote-6) The final sample contains 365 time periods and a total number of observations of 408,000, with 93,840 observations classified as disabled and 314,160 classified as nondisabled individuals. We have an unbalanced panel as not all individuals provide sufficient details to be included in our data sample. Our sample also includes the same individuals on multiple occasions if they have been involved in more than one violent incident over the duration of our sample period. Individuals are identified by their unique National Health Service Number.

**4. Results**

*4.1 Validity of all models*

We report all the empirical findings in Tables 1-3. First for all estimated models, we observe that the fixed and time effects of equation (1) are significant, suggesting that the individual and time-specific shocks differ significantly across the individuals in our sample, justifying the use of the panel. This is because the fixed and time effects dummies are significant across all individuals in our sample due to the fact that the p value is zero for the fixed and time effects of all model suggesting that individuals are different to each other and over time. In order to deal with this cross sectional and time effect we need to estimate a model in panel format. This is why we estimate equation (1) in a panel framework.

In addition, all estimated models pass the diagnostic tests. A test for first order serial correlation is insignificant, which suggests that the panels do not suffer from serial correlation. This is because the p value of the AR(1) test is above 0.05 for all models suggesting that we cannot reject the null hypothesis of no serial correlation. It is important that the models do not suffer from serial correlation, because then we can use the p values of conventional t statistics to determine the significance of the explanatory variables in equation (1). The Jarque-Bera normality test indicates that the residuals of the models are normally distributed, implying that the empirical estimates obtained are not due to any outliers in the data. This is because the p value is greater than 0.05 for all estimated models, suggesting that we cannot reject the null hypothesis of normality. It is important that we have normality of the error terms of the panel estimations, as this indicates that our results are genuine and not driven by a few extreme observations.

The Sargan tests confirm the validity of the instruments in all GMM system models. It is vital that we have valid instruments in order to obtain robust econometric estimates for the GMM system panel estimations. This is because the Diff Sargan p values are above 0.05 in all models, implying that we cannot reject the null hypothesis of valid instruments. Finally, for all models the control variable denoted by the price of alcohol is negative and significant. This reaffirms the results of the previous literature (Matthews et al 2016) that the lower the price of alcohol the greater the likelihood of violence and vice versa. The significance of the price of alcohol also justifies its use as a control variable in equation (1). The price of alcohol is not relevant to determining disability but is an important control variable for explaining violence. We include it as a control variable to avoid the econometric problems of omitted variable bias.

*4.2 Disability on the violence of individuals*

Table 1 looks at the impact of disability on the violence of individuals. From Table 1 the most prominent result is the positive and significant relationship between disabled individuals and the rate of violence. This is because the disability dummy variable has a p value of zero, which rejects the null hypothesis that there is no relationship between disability and violence. This implies that disabled individuals have a greater probability of being involved in an activity that causes violence.

**[INSERT TABLE 1 HERE]**

*4.3 Violence and disability for aggressors.*

Tables 2 displays the empirical association between violence and disabled individuals classified as aggressors. In Table 2 we reveal that there is no statistical association between disabled individuals and the rate of violence, when the disabled individuals cause the violence (the aggressors). We derive this conclusion because the dummy variable representing the aggressive disabled individuals in our sample is not statistically significant. This is because it has a p value of 0.21 which is above 0.05, suggesting that we cannot reject the null hypothesis of no statistical significance.

**[INSERT TABLE 2 HERE]**

*4.4 Violence and disability for victims.*

Table 3 shows the empirical relationship between violence and disabled individuals who are regarded as victims. In Table 3 we report that disabled individuals have a positive effect on the rate of violence (p value of zero), when disabled individuals are the victims of violence. We also show that the magnitude of the dummy variable coefficient is significantly larger when we only consider disabled individuals who are the victims of crime. Our results provide strong support that disabled individuals are victims of violence.

**[INSERT TABLE 3 HERE]**

We report all the empirical findings in Tables 1-3. Table 1 looks at the impact of disability on the violence of individuals. Tables 2 and 3 decompose the violence data of disabled individuals into aggressors and victims respectively.

When we decompose the disabled individuals into aggressors and victims of crime we find some very striking results. In Table 2 we reveal that there is no statistical association between disabled individuals and the rate of violence, when the disabled individuals cause the violence (the aggressors). We derive this conclusion because the dummy variable representing the aggressive disabled individuals in our sample is not statistically significant. This is because it has a p value of 0.21 which is above 0.05, suggesting that we cannot reject the null hypothesis of no statistical significance.

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**[INSERT TABLE 3 HERE]**

**5. Discussion**

The study provides strong evidence confirming the magnitude of victimization of disabled people using a large panel data set which deals with the econometric issues of endogeneity and joint determination. At the same time, our analysis demonstrates that there is no statistical association between disabled individuals and the rate of violence, when the disabled individuals cause the violence (the aggressors).

The results of the study highlight the necessity to focus on public health and other policy implications of violence using a ‘disability perspective’ in the analysis while focusing on the importance of disability equality in violence prevention work. While acknowledging the oppression and violence couplet experienced by individuals with disability, the aim should be to break this vicious cycle of systemic inequalities and discriminatory regimes that relegate this group of individuals to the fridges of society and enhances their vulnerability to violence (Goodley and Runswick-Cole 2011; Hollomotz 2012) .

To this end, disability-related and public-health policy formulation and implementation should place a stronger emphasis on anti-discrimination work and violence prevention by taking into consideration intricately complex interplays of dynamics that give rise to violent behaviours against disabled individuals. These violent behaviours have a genealogy and are imbued by ideological presuppositions and prejudices that need to be addressed and mitigated (Brassard et al 2015; Goodley and Runswick-Cole 2011). For instance, measuring disability discrimination should be at the epicentre of social analyses aimed at understanding and explaining links between violence and disability (Cea D’Ancona 2017), while discussing implications for policy formulation and implementation.

Intersectionality-based violence prevention policies and practices are concerned with understanding the socio-cultural and systemic antecedents of violence against individuals with disabilities. This process involves an informed understanding of ‘the highly political nature of disability experience that needs intersectoral and socio-political interventions to eradicate the multiple forms of discrimination and oppression which have been endemic aspects of disabled people’s lives. Even though not explicitly adopting an intersectional perspective on disability violence prevention, Goodley and Runswick-Cole (2011), draw upon Zizek’s work in order to understand ‘the contours of the background’ that breed violence. These contours can be traced to ‘the role of social relationships, institutions and culture in the constitution of violence’ (p. 602). Hence, breaking the link between violence and disability necessitates challenging hierarchical power relations, oppressive regimes and structural inequalities that are reciprocally related and converge to produce disability-related violence. These dynamics along with their spatial and temporal manifestations coalesce and increase the vulnerability of disabled people to violence.

The implementation of an intersectionality-based violence prevention program focuses on developing and implementing public-health and related policies aimed at dismantling the vicious circle of polyvictimization that is experienced by disabled individuals (Busche et al 2012; Brassard et al 2015). Interdisciplinary policy interventions from health, counselling, nursing, social services, childcare should be supplemented by policy interventions at the macro-level (the wider social context and global socio-economic developments) (Raffo et al. 2009) Poverty, for example, can be a contributory factor to the experience of disability-related violence, hence governments should focus resources on increasing disabled people’s economic and social power their opportunities to access education and paid employment ( der Heijden et al 2016; Emerson and Rouldtone 2014).

One limitation of our study relates to our sample of 26 randomly selected A&E emergency departments which represents around 33% of total A&E departments in London. We were only able to obtain sufficient data from these 26 hospitals on violence and disability. This limits the study to some extent, but on the other hand we still have a substantially larger dataset then previous empirical studies in this subject area. Another limitation of our study relates to the fact that disability is self-reported. This approach has been questioned due to its biased nature that ‘imposes serious limitations regarding the accuracy and interpretation of the data for national estimates’ (Marge 2011:154). Notwithstanding the limitations of the information obtained by self-reports, it has also been empirically documented that even though women with disabilities are largely reluctant to report violence to the police, physicians in A&E departments are ‘the first professional from whom an abused person seeks help’. (Barnet and Adler 2009 cited in Marge 2011:154*).*

A further limitation of our study lies in the complexity and the reciprocal effects of variables related to victims, perpetrators and contextual factors (Khalifeh et al 2013). For instance, our study did not take into consideration control variables such as neighbourhood crime rates or poverty. Emerson and Rouldtone’s (2014) study reports on the fact that affluent people with disabilities were not more likely to experience interpersonal violence compared with their non-disabled people while disability-related risk factors linked to violence increased when poverty levels increased.

Moreover, our study does not report on the type of disability as respondents were not asked to specify their type of disability and other comorbid conditions they might have. The disabled/ non-disabled binary constitutes a reductionist form of self-identification that ignores the complex, heterogenous and idiosyncratic nature of the ‘lived’ experience of disability (e.g Thomas 1999). This also relates to the dichotomous approach adopted for self-identification; individuals were asked to indicate -by ticking a box- whether they were disabled or not. Arguably, this approach can significantly influence the percentage of people who identify as ‘disabled’. Some individuals with disabilities might not consider themselves as being ‘disabled’, largely because their ‘impairment’ does not constitute a central aspect of their lives and human identities (Watson 2002). Hence, these individuals might be reluctant to accept a ‘disabled identity’, as they recognize their strengths and disavow arbitrary constructions of ‘ontological normalcy’ (Annamma, et al 2013).

More empirical studies are needed to provide a more rigorous and nuanced analysis of the extent to which individuals with disabilities might experience violence not only on the grounds of their disabilities, but also on the type of their disabilities. Individuals with disabilities do not form a homogeneous group of people. The differing nature of disabilities necessitates transcending the disabled/non-disabled binary to enhance understanding of the ways in which different types of disability evoke varied responses to disability experience, as well as different degrees of privilege/under-privilege (Goodley 2017) that mitigate/enhance the risk of victimization linked to interpersonal violence.

Simultaneously, more empirical evidence is needed to gauge the extent to which individuals with disabilities might experience violence on the grounds of the intersection of their disability status with other sources of social disadvantage linked to gender, race, ethnicity, age, sexuality and other markers of difference (Crenshaw 1991). Despite the availability of these studies (e,g Emerson and Roulstone 2014; Marge 2009; Casteel et al 2008; Smith 2008), their methodological rigor and sample population need to be strengthened so as to enhance understanding of the ways in which an intersectional analytical lens can inform violence prevention policy constitution and dissemination.

As a follow up of our study, the next step will be the examination of the extent to which differences in ethnicity and age have an impact on disability-related interpersonal violence. For example, it would be interesting to explore the interstices of disability and immigration and the ways in which disabled migrants experience interpersonal violence in their host countries. Notwithstanding, the disciplinary ghettoization of literature on disability and immigration (e.g Pisani and Grech 205 and El-Lahib 2017), there has been some recent, albeit limited, body of research exploring the difficulties that disabled migrants experience in their receiving countries, thereby acknowledging the cumulative and intersecting effects of racism and disablism (e.g Hanes 2009; Yeo 2017). In this respect, we can hypothesize that due to their dual minority social statuses disabled migrants are more likely to experience interpersonal violence in the context of diasporas, an issue that merits empirical investigation.

**6. Conclusions**

In this paper we empirically examined the extent to which disabled individuals experience violence due to victimization. High frequency daily data based on 408,000 observations in London was collated directly from the Accident and Emergency Units in hospitals. The Generalized Method of Moments system panel estimator ensures that our empirical estimates are robust to endogeneity and joint determination, unlike previous empirical research in this area.

Data analysis provides strong evidence confirming the victimization of people with disabilities and the necessity to focus on disability equality in violence prevention work. Our results have implications for the monitoring process of implementing the UNCRPD (see Article 35), which, inter alia, stipulates the need to protect people with disabilities ‘from all forms of exploitation, violence and abuse’ (Article 16). Disability-related data on people injured by violence can provide objective and evidence-based information on the extent to which the rights-based orientations of the Convention are acted upon by State Parties that signed and ratified the Convention (United Nations 2008).

The biannual progress reports, which according to Article 35 are expected to be submitted to the Committee by each State Party documenting the measures taken to give effect to their obligations under the present Convention, should provide evidence-based information on the ways in which State Parties have facilitated the formulation and implementation of public health and other related policies aimed at challenging the multitude and cumulative forms of historical, ideological and discursive systems of social domination and inequality that contribute to the reproduction and sometimes social legitimization and normalization of violence against people with disabilities. (Brassard et al 2015; Busche et al 2012). Only in this way can the rhetorical proclamations of the Convention become enacted practices aimed at addressing the mutually reinforcing effects of the symbolic and physical violence experienced by individuals with disabilities.

**References**

Annamma, S. A., D. Connor, and B. Ferri. (2013). “Dis/Ability Critical Race Studies (DisCrit): Theorizing at the Intersections of Race and Dis/Ability.” Race Ethnicity and Education 16 (1): 1–31.

Baynton, D. 2001. Disability and the justiﬁcation of inequality in American history. In The new disability history: American perspectives, ed. Paul K. Longmore and Lauri Umansky, 92–102. New York: New York University Press.

Biørn, E. and T. J. Klette (1999). "The Labour Input Response to Permanent Changes in Output: An Errors-in-Variables Analysis Based on Panel Data." Scandinavian Journal of Economics **101**(3): 379-404.

Blundell, R. and S. Bond (1998). "Initial conditions and moment restrictions in dynamic panel data models." Journal of Econometrics **87**(1): 115-143.

Busche, M., E. Scambor, and O. Stuve. 2012. “An Intersectional Perspective in Social Work and Education.” ERIS Web Journal 1/2012. http://periodika.osu.cz/eris/dok/201201/02\_an\_intersec tional\_perspective\_in\_social\_work\_education.pdf

Campbell, F.A.K. (2008). ‘Exploring internalized ableism using critical race theory’. Disability & Society, 23(2), 151–162.

Campbell, F.K. (2009). Contours of Ableism: The Production of Disability and Abledness. Basingstoke: Palgrave MacMillan.

Casteel C, Martin SL, Smith JB, et al (2008). National study of physical and sexual assaul tamong women with disabilities. InjPrev.;14:87-90.

Cea D’Ancona, M.A (2017) Measuring multiple discrimination through a survey-based methodology. Social Science Research, 66, 239-251

Chan, K.L, Emery, C and Ip, P (2016) Children with Disability are more at Risk of Violence Victimization: Evidence from a Study of School-Aged Chinese Children. Journal of Interpersonal Violence, 31(6), 1026-1046

Chatzitheohari, S, Parsons, S and plat, L (2016) Doubly disadvantaged? Bullying experiences among Disabled Children and Young People in England. Sociology, 50(4), 695-713

Clark, N. 2012. “Perseverance, Determination and Resistance: An Indigenous Intersectional-Based Policy Analysis of Violence in the Lives of Indigenous Girls.” In An Intersectionality-Based Policy Analysis Framework, edited by O. Hankivsky. Vancouver, BC: Institute for Intersectionality Research and Policy, Simon Fraser University

Cornwell, C., et al. (1992). "Simultaneous equations and panel data." Journal of Econometrics **51**(1–2): 151-181.

Degener, Th. (2016). “Disability in a Human Rights Context.” *Laws*, 5 (35): 1-24.

Crenshaw, K. 1991. Mapping the margins: Intersectionality, identity politics, and violence against women of color. Stanford Law Review 43, no. 6: 1241–99.

Donnelly C.E (2016) Re-visioning Negative Archetypes of Disability and Deformity in Fantasy*:*Wicked, Maleficent,*and*Game of Thrones. Disability Studies Quarterly. 36 (4). Available online at:http://dsq-sds.org/article/view/5313/4470

El-Lahib, Y (2017) Theoretical dimensions for interrogating the intersection of disability, immigration and social work International Social Work, 60(3), p.p 640 –653

Emerwson, E and Roulstone, A 92014) Developing an Evidence Base for Violent and Disablist Hate Crime in Britain: Findings from the Life Opportunities Survey. Journal of Interpersonal Violence, 29(17), 3086-3104

Goodley, D. (2017). Disability Studies. an Interdisciplinary Introduction. London: Sage.

Goodley, D and Runswick-Cole, K (2011) The violence of disablism. Sociology of Health & Illness, 33 (4). 602–617 doi: 10.1111/j.1467-9566.2010.01302.

Farmer, T, Wike, T, Quentin, A, Rodkin, P and Mehtaji, M (2015) Students with Disabilities and Involvement in Peer Victimization: Theory, Research, and Consideration for the Future. Remedial and Special Education,29 (17)3086-3105

Hanes, R (2009) None is Still Too Many: An Historical Exploration of Canadian Immigration Legislation As It Pertains to People with Disabilities Developmental Disabilities Bulletin, 7, (1 & 2) pp. 91- 126

Hankivsky, O., D. Grace, G. Hunting, O. Ferlatte, N. Clark, A. Fridkin, M. Glesbrecht, S. Rudrum, and T. Laviolette. 2012. “Intersectionality-Based Policy Analysis.” In An IntersectionalityBased Policy Analysis Framework, edited by O. Hankivsky. Vancouver, BC: Institute for Intersectionality Research and Policy, Simon Fraser University.

Harrell, E (2016) Crime Against Persons with Disabilities, 2009-2014-Statistical Tables. Bureau of Justice Statistics. US Department of Justices: Bureau of Justice Statistics

Hausman, J. A. (1978). "Specification Tests in Econometrics." Econometrica **46**(6): 1251-1271.

Hughes, K., Bellis, M. A., Jones, L., Wood, S., Bates, G., Eckley, L., et al. (2012). Prevalence and risk of violence against adults with disabilities: a systematic review and meta-analysis of observational studies. *Lancet*, 379(9826), 1621-1629.

Hughes, R.B., Lund, E.M., Gabrielli, J., Powers, L.E., & Curry, M.A. (2011). Prevalence of interpersonal violence against community-living adults with disabilities: A literature review. Rehabilitation Psychology, 56, 302-319.

Hollomotz, A (2012) Disability, Oppression and Violence: Towards a Sociological Exploration. Sociology, 47(3) 477-493

Krnjacki,L., Emerson,E., Llewellyn, G., Kavanagh, A (2016) Prevalence and risk of violence against people with and without disabilities: findings from an Australian population-based studyAustralian and New Zealand Journal of Public Health 2016, 40 (1), 16-21

Marge, D (2011) Feasibility of expanding NEISS-AIP to create a scientific database on violence and disability [Disability and Health Journal ( 4 ) 153](http://dx.doi.org/10.1016/j.dhjo.2010.09.003)-[164](http://dx.doi.org/10.1016/j.dhjo.2010.09.003)

Matthews, K, J. Shepard and V.Sivarajasingham (2006). “Violence-related injury and the Price of beer in England and Wales”. Applied Economics, **38**(6), 661-670.

Mikton, C and Maguire, H and Shakespeare, T ( 2014) A systematic Review of the Effectiveness of Intervetnions to Prevent anf Respond to Violence Against Persons with Disabilities Journal of Interpersonal Violence, 29(17) 3207-3226

Mikton, C and Shakespeare, T (2014) Introduction to Special Issue on Violence Against People with Disabilities. Journal of Interpersonal Violence, 29(17) 3055-3062

McLaughlin, J (2017) The medical reshaping of disabled bodies as a response to stigmas and a route to normality. Medical Humanities, (43), 244-250

National Council on Disability (2007) Joint statement by the National Council on Disability, Association of University Centers on Disabilities, and the National Center for Victims of Crime. Breaking the silence on crime victims with disabilities in the United States. Washington, DC: National Council on Disability; May 21, 2007.

Oliver, M. (1999). ‘Capitalism, disability and ideology: A materialist critique of the normalization principle’. First published in Flynn, Robert, J. and Lemay, Raymond, A. A Quarter-Century of Normalization and Social Role Valorization: Evolution and Impact. Available online at: h ttp://www. independentliving.org/docs3/oliver99.pdf.

Oliver, M. (1990). Th e Politics of Disablement London: Macmillan

Perlin, M (2009) Simplify You, Classify You": Stigma, Stereotypes and Civil Rights in Disability Classification SystemsGeorgia State University Law Review: Vol. 25: Iss. 3, Article 6. Available online at:http://readingroom.law.gsu.edu/gsulr/vol25/iss3/6

Pisani, M. and Grech, S. (2015) Disability and Forced Migration: Critical Intersectionalities

Disability and the Global South,2, (1), 421-441

Ralph, S, Capewell, C and Bonnett, E (2016) Disability hate Crime: persecuted for difference. British Journal of Special Education, 43 (3)

Smith DL (2008). Disability, gender and intimate partner violence: relationships from the Behavioral Risk Factor Surveillance System. Sexual Disabil. J.(26):15-28.

Thomas, C. 1999. Female Forms. Buckingham: Open University Press.

van der Heijden, Abraham, N and harries, J (2016) Additional Layers of Violence: The Intersections of Gender and Disability in the Violence Experiences of Women with Physical Disabilities in South Africa. Journal of Interpersonal Violence

UN (United Nations). 2008. *Convention on the Rights of Persons with Disabilities*. New York, UN

Watson, N. (2002). “Well, I Know This is Going to Sound Very Strange to You, but I Dont See Myself as a Disabled Person: Identity and Disability.” Disability and Society 17 (5): 509–527.

World Health Organization. Global Status Report on Violence Prevention [Internet]. Geneva (CHE): WHO; 2014 Available from:

http:// www.who.int/violence\_injury\_prevention/violence/ status\_report/2014/en/ ( last accessed 19th October 2017)

Yeo, R (2017) The deprivation experienced by disabled asylum seekers in the United Kingdom: symptoms, causes, and possible solutions, Disability & Society, 32:5, 657-677, DOI: 10.1080/09687599.2017.1320268

1. The outcomes of the Hausman (1978) test are revealed in our econometric results. [↑](#footnote-ref-1)
2. For further detail on the GMM system estimator in a panel framework, readers are referred to Blundell and Bond (1998). [↑](#footnote-ref-2)
3. The time-varying matrix of instruments for the first difference GMM estimator can be observed in Blundell and Bond (1998). [↑](#footnote-ref-3)
4. The Three Stage Least Squares panel estimator also computes a system of equations simultaneously and is regarded as an alternative to the GMM system estimator. However, we implement the GMM system estimator, given that it accommodates for the possibility of joint determination of an equation system with different instruments for different equations (Cornwell et al (1992)). [↑](#footnote-ref-4)
5. A list of the 26 Accident and Emergency Departments that took part in our study are available from the authors upon request. [↑](#footnote-ref-5)
6. https://www.mysupermarket.co.uk/ [↑](#footnote-ref-6)