

**Perceptions of Safety and Exposure to Violence in Public Places among Working
Age Adults with Disabilities or Long-Term Health Conditions in the UK: Cross
Sectional Study**

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Abstract

Objectives

To examine perceptions of safety and exposure to violence in public places among working age adults with and without disabilities in the UK and to assess the extent to which any between-group differences may be moderated by gender and socio-economic situation.

Study design

Cross-sectional study.

Methods

Secondary analysis of data collected in Wave 3 (2011-13) of *Understanding Society*. Data were extracted on a subsample of 5,069 respondents aged 16 to 64 (28% of whom had a disability/long-term health condition) who were administered a questionnaire module addressing experiences of harassment. Between-group comparisons were made on four self-reported indicators of safety.

Results

Respondents with disabilities/long-term health conditions were significantly more likely to have been attacked (adjusted OR 2.30, 95%CI(1.17-4.50), $p<0.05$), insulted (adjusted OR 1.48, 95%CI (1.16-1.90), $p<0.01$) and to feel unsafe in public places (adjusted OR 1.32, 95%CI(1.16-1.56), $p<0.01$) over the previous 12 months. There were no statistically significant differences between groups with regard to self-reported avoidance of public places. These associations were moderated by both gender and poverty status, with the increased risk of exposure to violence among people with disabilities being greater for both women and people living in poverty.

Conclusions

The data add further support to the growing evidence base suggesting that people with a disability/long-term health condition are at significantly increased risk of exposure to interpersonal violence, particularly if they are living in poverty or are women. As such, there is a clear need to

develop interventions that are targeted to the particular circumstances and needs of these high risk groups.

Introduction

Article 1 of the UN convention of the Rights of Persons with Disabilities defines people with disabilities as those “who have a long-term physical, mental, intellectual or sensory impairment which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others”. Current conceptions of disability draw attention to the important role played by exclusionary socio-cultural practices in creating and perpetuating the social inequalities experienced by people with disabilities.^{1,2} As such, disability is increasingly being viewed as a human rights issue.^{3,4}

There is extensive evidence that people with disabilities are in general more likely than their non-disabled peers to be exposed to a wide range of social determinants of poor health such as poverty, unemployment, poor housing, social exclusion and overt discrimination.^{3,5} For example, two recent meta-analyses have indicated that children and adults with disabilities are more likely to experience inter-personal violence than those without disabilities.^{6,7}

Inter-personal violence is a significant public health and human rights issue.^{8,9} As outlined in the recent Global Status Report on Violence Prevention, a crucial step in developing a public health response to violence is to define the magnitude of the problem using high-quality population-based data, evidence of which is currently limited.⁸

A small number of studies using population-based surveys in high-income countries have been published since the meta-analysis (mentioned above) which indicated that adults with disabilities had a 1.5 fold increase in the odds of interpersonal violence in the previous 12 months.⁷ Prevalence estimates from the U.S have indicated that 19% of men and 36% of women with disabilities reported intimate partner violence in their lifetime compared to 13% of men and 22% of women without disabilities.¹⁰ A U.S longitudinal study also reported higher levels of intimate partner violence among those with disabilities compared to their non-disabled counterparts, with an

increased odds of 1.6 for those with physical or mental health impairments.¹¹ In the UK, analysis of data from the British Crime Survey indicated that people with disabilities were more likely to experience domestic or non-domestic violence in last 12 months, with an increased odds of 3.0 for those with mental illness and 1.8 for those with a non-mental disability.¹² An additional UK study has reported that people with disabilities were significantly more likely (adjusted OR 2.3) to be exposed to violent crime in the last 12 months.¹³ Finally, in Sweden, a national public health study has reported that men and women with disabilities were more often exposed to physical and psychological violence when compared to their same sex non-disabled counterparts.¹⁴

These studies have contributed to the growing evidence about the extent to which people with disabilities are at increased risk of exposure to violence. However, there are three important limitations to the existing literature. First, as both recent meta-analyses of the literature on violence against people with disabilities highlighted, there is a lack of high quality studies, especially those using nationally representative samples.^{6,7} Second, there is limited evidence about the specific contexts in which violence against people with disabilities occurs, an omission which undermines prevention responses. In particular little is known about violence that occurs in public places, such as violence against people with disabilities on the street, on public transport, in commercial places and entertainment precincts. Finally, the existing literature has primarily focused on exposure to interpersonal violence, little is known about perceptions of personal safety and the avoidance of particular places among people with disabilities.¹⁵ This omission is important as an individual's perception of being unsafe in public places may lead to avoidance of such locations (and consequently reduced participation in civic and social activities) and/or increased stress when exposed to such locations. For example, a recent survey of use of public transport in Northern Ireland indicated that respondents with a disability were twice as likely as other respondents (8% vs 4%) to report that they never used public transport due to personal safety considerations.¹⁶

The aims of the present paper are to examine perceptions of safety and the extent of self-reported exposure to violence in public places among working age adults with and without

disabilities in a population-based survey of adults in the UK. In addition we assess the extent to which any between group differences in reported experiences of safety and exposure to violence may be moderated by gender and socio-economic situation.

Methods

We undertook secondary analysis of data collected in Wave 3 of *Understanding Society*, a new longitudinal study focusing on the social and economic circumstances, attitudes, behaviours and health of UK citizens (<https://www.understandingsociety.ac.uk/>). Data were downloaded from the UK Data Archive (<http://www.data-archive.ac.uk/>). Full details of the surveys' development and methodology are available in a series of reports,¹⁷⁻²² key aspects of which are summarized below.

Samples

In the first wave of data collection (undertaken between January 2009 and December 2011), random sampling from the Postcode Address File in Great Britain and from the Land and Property Services Agency list of domestic properties in Northern Ireland identified 55,684 eligible households across the UK. Interviews were completed with 50,994 individuals aged 16 or older from 30,117 households, giving a household response rate of 54% and an individual response rate within participating households of 86%.^{17, 23} At Wave 3 (2011-13) interviews were completed with 36,299 individuals aged 16 to 64 (the target population for our analyses), giving an individual retention rate of 81%.²¹

A questionnaire module addressing experiences of harassment was administered to a subsample of 5,069 respondents in the targeted age range at Wave 3. The subsample was constituted of the Ethnic Minority Boost sample (unweighted n=4,056), a separate sample at Wave 1 designed to ensure sufficient oversampling of participants from minority ethnic communities, and the General Population Comparison Sample (unweighted n=1,013) which was randomly selected from the main sample.^{22, 23}

Procedures

Data collection for variables used in the present paper was undertaken using face-to-face Computer Assisted Personal Interviewing.

Measures

Disability or Long-Term Health Condition

Disability/long-term health condition was ascertained by an affirmative response to a single question: *'Do you have any long-standing physical or mental impairment, illness or disability? By 'long-standing' I mean anything that has troubled you over a period of at least 12 months or that is likely to trouble you over a period of at least 12 months.'* The overall prevalence of disability/long-term health condition in the targeted age group (16-64) was 28%, rising from 20% among participants aged below 30 years to 41% among participants aged 50 or older.

Safety

Following a preamble (*'the next few questions are about how safe you feel in different places'*) respondents were asked whether *'in the last 12 months'* they had: (1) *'felt unsafe in any of these places?'*; (2) *'avoided going to or being in any of these places?'*; (3) *'been insulted, called names, threatened or shouted at, in any of these places?'*; (4) *'been physically attacked in any of these places?'*. Response options were simple binary 'yes/no'. Settings relevant to safety in public places included: (a) on public transport; (b) at or around a bus or train station; (c) in commercial places like shopping centres, shops or petrol stations; (d) in places of entertainment like theatres, cinema, cafes or restaurants; (e) at pubs, nightclubs, discos or clubs; (f) in car parks; (g) outside, such as on the street, in parks or sports grounds.

A summary measure was derived for each of the four indicators of safety (feeling unsafe, avoiding places, being insulted/threatened, being attacked) based on reported exposure in any of the seven settings. The use of four indicators was required given the weak strength of association between the indicators. Participants who had been attacked in public were also significantly more likely to have been insulted in public (Kendal's tau-B = 0.26, $p < 0.01$) and to feel unsafe in public

(Kendal's tau-B = 0.15, $p < 0.01$). They were not, however, more likely to report avoiding public places (Kendal's tau-B = -0.23, n.s.). Participants who had been insulted in public were also significantly more likely to feel unsafe in public (Kendal's tau-B = 0.24, $p < 0.01$) and to report avoiding public places (Kendal's tau-B = 0.13, $p < 0.01$). Participants who reported feeling unsafe in public were significantly more likely to report avoiding public places (Kendal's tau-B = 0.26, $p < 0.01$). There was no marked difference in the strength of these associations between participants with and without disability/long-term health condition.

Income Poverty

Income poverty was defined as the equivalised household income falling below 60% of the sample median, a measure of poverty regularly used in the UK and internationally.^{24, 25}

Ethical Approval

Understanding Society is designed and conducted in accordance with the ESRC Research Ethics Framework and the ISER Code of Ethics. The University of Essex Ethics Committee approved Waves 1-5 of Understanding Society.

Approach to Analysis

First, we calculated crude percentage prevalence rates for adults with and without disabilities for the four indicators of safety with 95% confidence intervals using the Wilson method.²⁶ Second, we used multivariate logistic regression to estimate risk (odds ratios) for participants with disabilities (participants without disabilities being the reference category) being exposed to each of the four indicators of safety. In Model 1 we calculated unadjusted estimates of risk (odds ratios). In Model 2 we adjusted for between group differences in age and gender. In Model 3 we adjusted for between group differences in income poverty. Finally, we separately added two interaction terms to the model (disability x gender, disability x income poverty) in order to identify possible moderation effects associated with gender and poverty status.

There was minimal missing data for the key outcome variables: safety $n=164$ (3%); avoidance $n=15$ (0.3%); insulted $n=5$ (0.1%); attacked $n=6$ (0.1%). There were no missing data for gender or age.

Item non-response missing data for income are imputed by the Institute for Social and Economic Research and deposited with the raw data in the UK Data Archive. Imputation methods used vary by type of variable and include linear regression, interval regression, logistic regression, ordered logistic regression, multinomial logistic regression, predictive mean matching and hot-deck imputation.²² Full details are given in the user guide.²² For the subsample used in the present study, income information related to current employment was imputed for 4.7% of respondents; income information relating to benefits was imputed for 1.5% of respondents.

All analyses used sample weights provided with the data to adjust for potential biases produced by the sampling design (e.g., the overrepresentation of respondents from minority ethnic groups) and in participant recruitment and retention.²² As a result, all estimates of prevalence and risk can be considered as being representative of the UK population even though the sampling method (and the unweighted data) involved oversampling of some ethnic groups.

Results

Characteristics of the samples and raw percentage prevalence for adults with and without disabilities/long-term health conditions are presented in Table 1. Unadjusted estimates of risk (model 1) and estimates of risk adjusted for between group differences in age and gender (model 2), and age, gender and poverty status (model 3) are presented in Table 2. In the unadjusted comparisons there were no statistically significant between group differences in the prevalence of exposure to any of the four indicators of safety (with disabilities/long-term health conditions 39% feeling unsafe, 12% avoiding places, 12% being insulted/threatened, 2% being attacked; without disabilities/long-term health conditions 36% feeling unsafe, 13% avoiding places, 10% being insulted/threatened, 1% being attacked). However, in the comparisons adjusted for between group differences in age and gender participants with disabilities/long-term health conditions were significantly more likely to report feeling unsafe, to have been threatened/insulted and to have been attacked than their non-disabled peers. The latter comparison was indicative of a moderate effect

size.²⁷ Further adjusting risk estimates for between group differences in income poverty had marginal impact on the risk estimates associated with disability.

Potential Moderation by Gender

The disability/long-term health conditions by gender interaction term was significant for three of the four variables (feeling unsafe OR 1.42, 95%CI 1.02-1.96, $p<0.05$; insulted/threatened in one or more setting OR 2.93, 95%CI 1.79-4.79, $p<0.001$; attacked in one or more setting OR 18.10, 95%CI 2.14-153.17, $p<0.01$). In each instance the direction of the effect suggested that the risk of participants with disabilities being exposed to violence was greater for women. Women with disabilities were significantly more likely than other women to feel unsafe (fully adjusted OR 1.73, 95%CI 1.37-2.19, $p<0.001$), to have been insulted (fully adjusted OR 4.65, 95%CI 3.07-7.05, $p<0.001$) and to have been attacked (fully adjusted OR 11.75, 95%CI 4.44-31.10, $p<0.001$). There were no significant differences between men with and without disabilities on any of these variables.

Potential Moderation by Poverty Status

The disability/long-term health conditions by poverty interaction term was significant for two of the four variables (insulted/threatened OR 2.28, 95%CI 1.25-4.15, $p<0.01$; attacked OR 108.44, 95%CI 9.58-1227.37, $p<0.001$). In both instances the direction of the effect suggested that the risk of participants with disabilities being exposed to violence was greater for participants living in income poverty. People with disabilities living in poverty were significantly more likely than people living in poverty to have been insulted (fully adjusted OR 2.95, 95%CI 1.70-5.11, $p<0.001$) and to have been attacked (fully adjusted OR 43.56, 95%CI 7.78-243.93, $p<0.001$). There were no significant differences between people with and without disabilities not living in poverty on either of these variables.

Discussion

Our results indicated that, within a contemporary population-based sample of British adults of working age, people with disabilities/long-term health conditions were significantly more likely to have been attacked, insulted and to feel unsafe in public places over the previous 12 months. There

were, however, no differences between participants with and without disabilities/long-term health conditions with regard to reports of avoiding public places. There was evidence that these associations were moderated by both gender and poverty status, such that the increased risk of reporting negative outcomes among people with disabilities was higher among women and people living in poverty; and example of the extent to which disability is gendered and classed. Our estimates of the magnitude of increased risk are very similar to those of previous recent UK studies, although they have used different datasets.^{12, 13}

These findings add to the existing literature in four important ways. First, they extend the literature on exposure to violence by examining subjective reports of perceived safety and avoidance. Somewhat surprisingly, while people with disabilities/long-term health conditions were more likely to have been attacked, insulted and to feel unsafe in public places, they were not more likely to report avoiding public places. The causes of the disjunction between both perceptions of safety and exposure to violence and avoidance warrant further scrutiny. Second, our findings add to the very limited literature that has examined the extent to which the relationship between disability and exposure to violence may be moderated by contextual factors (gender, income poverty). They are consistent with recent UK research which has suggested that the increased risk of exposure to violence may be specific to people with disabilities living in more socially disadvantaged conditions.¹³ Third, given that the unadjusted analyses obscured the relationship between disability safety, they highlight the importance of research in this area adjusting for between group differences in age (given that increasing age is associated with an increased risk of disability and a decreased risk of exposure to violence). Finally, the data are representative of the UK population.

There are a number of limitations that need to be kept in mind when considering the salience of our findings. First, the classification of disability used in our analyses is based on self-identification. While self-identification measures are widely used in health and social surveys to identify disabled people,^{3, 28-30} a variety of factors are likely to influence whether a respondent will consider themselves disabled, including social desirability effects associated with the interview

process itself.^{30, 31} The level and nature of bias associated with such measurement errors are unknown and may in themselves be socially patterned. Second, we were unable to separate disability and long-term health condition in the data so our prevalence estimate of 28% among working age adults is somewhat higher than typically reported for disability per se.^{30, 32} It is not known if people with long term health conditions have a different risk of exposure to violence than those with disabilities. Third, we were unable to disaggregate the data by type of impairment. This is of concern given the evidence that people with psychological or cognitive impairments may be at greater risk of exposure to violence than people with sensory or physical impairments.^{6, 7, 13} Fourth, the sampling frame and interview procedure will have reduced participation of people with more severe disabilities. Finally, the survey is cross-sectional. As such, we cannot establish causal links between disability and the risk of violence, although reverse causation (violence leading to disability) is somewhat unlikely for the majority of the indicators used in the present study (e.g., being insulted).

Future research in this area could usefully focus on addressing some of the limitations of the present study (especially disaggregating analyses by type of impairment and/or functioning) and investigating the mechanisms underlying the apparent disjunction between self-reported avoidance of public places and both perceptions of safety and actual exposure to violence. The primary implications for policy and practice are that the data add further support to the growing evidence base suggesting that people with disabilities are at significantly increased risk of exposure to interpersonal violence, particularly if they are living in poverty or are women. As such, there is a clear need to develop interventions that are targeted to the particular circumstances and needs of these high risk groups.

Acknowledgements

Understanding Society the UK Household Longitudinal Study (UKHLS) is an initiative by the Economic and Social Research Council with scientific leadership by the Institute for Social and Economic Research, University of Essex, and survey delivery by the National Centre for Social

Research and TNS BMRB. The study has also been supported by the Department for Work and Pensions, the Department for Education, the Department for Transport, the Department for Culture, Media and Sport, the Department for Communities and Local Government, the Scottish Government, the Welsh Government, the Department for Environment, Food and Rural Affairs, the Food Standards Agency, the Office for National Statistics, and the Department of Health.

Competing Interests

None of the authors have any financial or non-financial competing interests to declare.

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Table 1: Sample Characteristics and Raw Prevalence Rates of Perceptions of Safety and Exposure to Violence in Public Places (with 95% Confidence Intervals)

	Disability (weighted n = 955)	No Disability (weighted n = 2,499)
Sex: % women	51.4% (48.2%-54.6%)	50.1% (48.2%-52.1%)
Mean age	46.4 (45.6-47.3)	39.4 (38.9-39.9)
% living in poverty	27.2% (24.5%-30.1%)	18.4% (16.9%-20.0%)
Primary outcomes		
Felt unsafe in public place	38.7% (35.6%-41.9%)	36.2% (34.2%-38.2%)
Avoided somewhere	11.9% (10-0%-14.2%)	12.6% (11.4%-14.0%)
Insulted or threatened	11.6% (9.7%-13.8%)	10.2% (9.1%-11.4%)
Attacked	1.5% (0.9%-2.5%)	1.4% (1.0-1.9%)

Table 2: Unadjusted and Adjusted Risk (Odds Ratios with 95% Confidence Intervals) of Participants with Disability/Long-Term Health Conditions Feeling Unsafe, Avoiding Places and being Exposed to Violence in Public Places (Reference Group: Participants without Disability/Long-Term Health Conditions)

	Model 1	Model 2	Model 3
Felt unsafe in public place	1.12 (0.95-1.30)	1.31** (1.11-1.54)	1.32** (1.12-1.56)
Avoided somewhere	0.94 (0.75-1.18)	0.93 (0.80-1.28)	0.98 (0.77-1.24)
Insulted or threatened	1.16 (0.92-1.47)	1.44** (1.13-1.84)	1.48** (1.16-1.90)
Attacked	1.13 (0.61-2.10)	2.37** (1.23-4.55)	2.30* (1.17-4.50)
<p>Notes * p<0.05 ** p<0.01 Model 2: adjusted for between-group differences in age and gender Model 3: adjusted for between-group differences in age, gender and income poverty Odds ratios in bold indicative of moderate or larger effect size</p>			