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The Impact of Disability on Employment and Financial Security Following the Outbreak of the 2020 COVID-19 Pandemic in the UK

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The Impact of Disability on Employment and Financial Security Following the Outbreak of the 2020 COVID-19 Pandemic in the UK

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Abstract

Background

The COVID-19 pandemic may have a greater impact on people with disabilities than non-disabled people. Our aim was to compare the short-term impact of the 2020 COVID-19 pandemic and first lockdown on the employment and financial security of working age adults with and without disabilities in the UK.

Methods

Secondary analysis of data collected in Wave 9 and the special April, May and June COVID-19 monthly surveys of *Understanding Society*, the UK's main annual household panel study.

Results

During the first three months of the introduction of the COVID-19 lockdown in the UK, respondents with disability were more likely than their peers to be working reduced hours and experience higher levels of financial stress. These differences were attenuated, but not eliminated, when estimates were adjusted to take account of pre-lockdown financial status.

Conclusions

Working age adults with disability were particularly disadvantaged by the financial impact of the COVID-19 lockdown in the UK. The UN Secretary-General António Guterres has stated the need for a disability-inclusive COVID-19 government response. The results of our analysis suggest that these pleas have either not been heeded, or if measures have been implemented, they have so far been ineffectual in the UK.

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4 Introduction
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7 It is well established that people with disabilities are more likely than their non-disabled peers to be
8 exposed to financial stressors such as income poverty, food poverty and insecure employment;(1-9)
9 stressors which are detrimental to health and wellbeing.(10-12)
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13 The 2020 global COVID-19 pandemic had a serious impact on the economies of many countries.(13)
14 Country responses to the pandemic have exposed flaws in social systems, revealing differential
15 vulnerabilities among groups, and highlighting the extent to which different groups are marginalised
16 in society. For example, research from population-based studies is beginning to suggest that the
17 initial outbreak of the COVID-19 pandemic has had a particularly detrimental impact on the
18 psychological wellbeing of adults with disabilities.(14, 15)
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23 Much of the focus of disability-related research on the impact of the COVID-19 pandemic to date has
24 been on the direct health vulnerabilities for people with disabilities in relation to infection.(16, 17)
25 However the effects (health and economic) related to the COVID-19 induced economic contraction
26 are likely to be experienced well beyond the period related to the acute viral impact. To date, little is
27 known about the immediate impact of the COVID-19 pandemic on the employment and financial
28 security of people with disabilities in the UK.(18) Given that they are one of the population groups
29 typically hardest hit by economic crises in general,(19) the COVID-19 pandemic may compound
30 employment exclusions and job loss for people with disabilities, particularly because they are more
31 likely to be employed in the informal economy and often have work arrangements that bring fewer
32 protections and entitlements compared to workers without disabilities.(20) Therefore, it is plausible
33 that the economic shock related to COVID-19 will have a greater impact on people with disabilities
34 than non-disabled people, leaving them worse off than before and increasing disability-related
35 socio-economic inequalities.
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45 The aim of this paper is to compare the short-term impact of the COVID-19 pandemic and associated
46 lockdown on the employment and financial security of working age adults with and without
47 disabilities in the UK.
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52 Method
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55 We undertook secondary analysis of data collected in Wave 9 (collected between 2017 and 2019)
56 and the special April, May and June 2020 COVID-19 monthly surveys of *Understanding Society*, the
57 UK's main annual household panel study (<https://www.understandingsociety.ac.uk/>). *Understanding*
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Society is an initiative funded by the Economic and Social Research Council (ESRC) and various Government Departments, with scientific leadership by the Institute for Social and Economic Research, University of Essex, and survey delivery by NatCen Social Research and Kantar Public.(21) The research data are distributed by the UK Data Service. Full details of the survey's development and methodology are available in a series of publications,(22-25) key aspects of which are summarized below.

Sampling & Procedure

In the first wave of data collection (2009-2011), 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 UK households. At Wave 1, full face-to-face interviews were completed with 41,975 individuals aged 16-64 (individual response rate within participating households, 80%). At Wave 9 (W9: 2017-19), full interviews were completed with 27,359 individuals aged 16-64 (overall response rate 68%).(23, 24) New individuals enter *Understanding Society* if they: (a) are living in a participating household and attain the age of 16; or (b) become resident in a participating household. Individuals leave the survey if they: (a) no longer give consent to participate; (b) cannot be traced; or (c) move abroad.

In response to the outbreak of the global COVID-19 pandemic in early 2020, the ESRC and the Health Foundation funded *Understanding Society* to undertake a monthly online survey (backed up in some months with a telephone survey for households with no internet access) on the experiences and reactions of *Understanding Society* participants to the COVID-19 pandemic.(25) The first wave of the COVID-19 survey was fielded in April 2020, with field work undertaken by Ipsos MORI and Kantar.(25) The second wave of the COVID-19 survey collected data during May 2020 and the third wave in June 2020. During these months, there was significant lockdown in the UK as a result of the government's response to the pandemic. While the details of the lockdown varied between the four countries that comprise the UK, they included the closure of non-essential businesses, most schools and restrictions on travel and social contact.

All *Understanding Society* participants who responded to at least one wave in Waves 8 to 10 were invited to participate in each of the COVID-19 surveys. Online questionnaires were completed in either April, May or June 2020. Responses were obtained from by 13,036 adults aged 16-64 for whom disability data were available (see below). Among those who had given a full adult interview in W9 (the latest regular Wave of data currently available) and for whom disability data were

available (see below), the response rate (including partial completion) for participation at least one month between April and June was 50%.

Data collection for variables used in the present paper (W9 and the monthly COVID-19 surveys for April, May and June) was undertaken using a combination of computer-assisted personal interviewing, computer-assisted self-completion and online surveys.(23-25)

Measures

Disability

Disability was ascertained in W9 by an affirmative response to two questions.

1. *‘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.’*
2. If respondents gave an affirmative response to the first question, they were asked *‘Does this/Do these health problem(s) or disability(ies) mean that you have substantial difficulties with any of the following areas of your life?’* (12 response options; e.g., ‘mobility’, ‘memory or ability to concentrate, learn or understand’ and ‘other’.

Respondents who reported difficulties in one or more of these life areas were counted as having disability. Disability data were missing for 0.2% of respondents in W9.

Employment

We extracted two measures of lost or reduced employment from the COVID-19 surveys.

- *Lost employment.* Information was collected on whether respondents were *‘in paid work or self-employment at any time in January or February 2020’*. Information was also collected on their current employment status. From these two items we created a binary variable of lost employment since January or February 2020 (yes/no).
- *Reduced hours of working.* For those in employment in Jan/Feb 2020 they were asked *‘how many hours did you usually work per week?’*. This question was repeated for the current month of the survey. From these items we created two binary variables: (1) the number of hours working had reduced since January or February 2020 (yes/no); (2) the number of hours working had reduced since January or February 2020 by 50% or more (yes/no).

In addition, following initial inspection of the data we derived four variables regarding the most commonly reported causes of reduced hours of working: (1) had been put on furlough or paid leave;

(2) had been laid off; (3) was taking annual leave; and (4) was self-isolating. All analyses related to loss of employment and reduced hours of working were restricted to participants who were in paid employment or self-employed in January/February 2020.

Financial Stress & Security

Unless stated, measures were included in both the April and May surveys. These variables were not collected in the June survey.

Food Poverty

We extracted two items that addressed food insecurity/poverty.

- *'How often has your household used a food bank, or similar service, in the last four weeks?' (Response options; Never, less than four times, four times or more).* We recoded this variable into a binary measure of food bank use (yes/no).
- *'Last week, was there a time when you or others in your household were hungry but did not eat?' (Response options; yes, no).* Collected in April only.

Debt

We extracted two items that addressed household debts.

- *'Many people find it hard to keep up with their housing payments. May we ask, are you up to date with your rent/mortgage?' (Response options; yes, no).*
- *'Sometimes people are not able to pay every household bill when it falls due. May we ask, are you up to date with all your household bills such as electricity, gas, water rates, telephone, council tax, credit cards and other bills or are you behind with any of them?' (Response options; Up to date with all bills, behind with some bills, behind with all bills).* We recoded this variable into to a binary measure of behind with at least some bills (yes/no).

Self-Assessed Financial Position

One item addressed self-assessed financial position

- *'How well would you say you yourself are managing financially these days? Would you say you are... (Response options; Living comfortably, doing alright, just about getting by, finding it quite difficult, finding it very difficult)'. We recoded this variable into a binary measure of finding it quite/very difficult (yes/no).*

Covariates

Demographics

Information was collected on age, gender and ethnicity (White UK/White other/Asian/Black/Mixed/Other) and whether the respondent was living as part of a couple.

Wave 9 Financial Status

Wave 9 financial status was assessed through three items: (1) self-assessed financial position (an identical question to that used in the monthly COVID-19 survey); (2) household income poverty. Household income poverty was defined as having an equivalised household income less than 60% of the national median;(26) (3) behind with household bills (an identical question to that used in the monthly COVID-19 survey).

Ethical Approval

Understanding Society is designed and conducted in accordance with the ESRC Research Ethics Framework. Ethics approval for Waves 9-11 was given via a letter dated 4th October 2016 from the University of Essex Ethics Committee. At that time a system of ethics approval numbers was not in place.

Approach to Analysis

The analytical sample was comprised of 13,031 respondents aged 16-64 to the COVID-19 survey for April, May or June for whom valid disability data was available in the W9 sweep of *Understanding Society* and who were aged below 65 at the time of completion of the COVID-19 questionnaire. Data were missing for <0.3% of the analytical sample for all variables related to demographics. Data on all other variables were missing for <5.0% of the analytical sample with the exceptions of: (1) food bank use was missing for 5.7%; (2) being behind with bills and housing payments was missing for 6.4%; (3) self-assessed financial stress was missing for 6.8%; and (4) being hungry but not eating was missing for 8.3%. Complete case analyses were undertaken in Stata 16 using the 'svy' routines to take account of the clustered sample design and sample weights, released with the COVID-19 data, to account for known biases in recruitment and retention. Unless stated, Poisson regression with robust standard errors was used to estimate prevalence rate ratios with 95% confidence intervals.(27)

For COVID-19 variables that were repeated in the monthly surveys, we created merged variables that recorded whether the event had occurred in any month (vs. not at all).

First, for binary outcomes we estimated the percentage of people with/without disability experiencing each outcome (with 95% confidence intervals). In addition, we estimated adjusted prevalence rate ratios (PRR) for respondents with disabilities being exposed to each outcome (respondents without disabilities being the reference group). In Model 1 we adjusted for between-group differences in age (10-year age groups treated as a categorical variable), gender and ethnicity. In Model 2 we also adjusted for W9 (baseline) financial security using the three measures of financial security (household income poverty, self-assessed financial stress, behind with bills).

Results

The association between disability status and all covariates is presented in Table 1. The association between disability status and outcome variables is presented in Table 2.

[insert Tables 1 and 2]

Prior to the outbreak of the COVID-19 pandemic people with disabilities were significantly less likely than their non-disabled peers to be in employment (55% vs. 83%). During the first three months of introduction of the first lockdown in the UK less than 5% of respondents had been made redundant and there were no statistically significant differences in redundancy rates between respondents with/without disability. However, there was some evidence that respondents with disability were more likely than those without disability to be working reduced hours and, especially, hours reduced by more than 50%. These increased risks of economic hardship were significantly attenuated when estimates were adjusted to take account of pre-lockdown financial status.

The financial circumstances of respondents with disability following lockdown were poorer than respondents without disability for all indicators when adjusted for differences in demographic characteristics. As with employment, these differences were attenuated when estimates were adjusted to take account of pre-lockdown financial status. However, they remained statistically significant for all five indicators with people with disability having between 24% (behind on bills) to 164% (used a foodbank) elevated risk of experiencing the five financial stressors.

Discussion

Main finding of this study

The results of our analyses indicated that, during the first three months of the introduction of the first lockdown in the UK, respondents with disability were more likely than their peers to be working reduced hours and experience higher levels of financial stress. These differences were attenuated, but not eliminated, when estimates were adjusted to take account of pre-lockdown financial status. These findings are notable given that far fewer people with disability were employed in the months before COVID-19, so a smaller overall proportion of people with disability were affected by COVID-19-related job loss or reduction in hours.

What is already known on this topic

Considerable concern has been expressed about the extent to which people with disabilities, and those who support them, may be particularly vulnerable to negative impacts of the COVID-19 pandemic.(28-39) However, to date little published research has attempted to characterise or quantify the risks faced by people with disabilities in relation to COVID-19.(14, 15, 17, 18, 40)

What this study adds

These results suggest that working age adults with disability, a group who are generally more likely to be exposed to financial stressors which are detrimental to health and wellbeing,(1-9) were being particularly disadvantaged by the financial impact of lockdown. Comments from the UN Secretary-General António Guterres provide important context for these results; in May he stated a need for a disability-inclusive COVID-19 response, contending that the pandemic presents an opportunity to design and build more inclusive and accessible societies.(41) The results of this analysis suggest that these pleas have either not been heeded, or if measures have been implemented, they have so far been ineffectual.

Limitations of this study

Our study has a number of limitations. First, only half of the adult respondents in Wave 9 participated in either the April to June COVID-19 surveys, introducing potential selection bias if the associations between disability and financial outcomes were different among respondents and non-respondents. Second, *Understanding Society* is a general household panel survey and, as such, excludes people living in institutional settings (e.g., care homes, barracks). This will have led to the exclusion of a proportion of working-age adults with very severe disabilities, which may have led to

an underestimation of the differences between people with and without disabilities. Third, while internet access in the UK is generally very high, the use of an online response format may have led to bias in response rates among participants with disabilities associated with reduced cognitive capacity.

The study also has a number of strengths. *Understanding Society* is one of the few longitudinal studies worldwide which has data on participants prior to the onset of the COVID-19 pandemic. Most studies of the impacts of COVID-19 have been cross-sectional raising the possibility of reverse causation and increasing the likelihood of differential and/or dependent misclassification where effect estimates may be biased away from the null in an unknown direction.(42)

Future research is required to monitor the medium- and longer-term impact of the COVID-19 pandemic on the wellbeing of people with disabilities.

Data Availability

The data underlying this article were provided by *the UK Data Service* under licence. Additional derived variables will be shared on request to the corresponding author with permission of *the UK Data Service*.

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References

1. Heslop P, Emerson E. Poverty and social exclusion and disabled people: a worsening picture. In: Dermott E, Main G, editors. *Poverty and Social Exclusion in the UK: Volume 1*. Bristol: Policy Press; 2018.
2. Schur LA. Dead end jobs or a path to economic well being? The consequences of non-standard work among people with disabilities. *Behavioral Sciences and the Law*. 2002; 20:601–20.
3. LaMontagne AD, Krnjacki L, Milner A, Butterworth P, Kavanagh A. Psychosocial job quality in a national sample of working Australians: A comparison of persons working with versus without disability. *SSM - Population Health*. 2016; 2:175-81.
4. Milner A, Aitken Z, Krnjacki L, Bentley R, Blakely T, LaMontagne AD, et al. Perceived fairness of pay among people with and without disabilities: a propensity score matched analysis of working Australians. *Scandinavian Journal of Work, Environment and Health*. 2015; 41:451-9.
5. Milner A, Krnjacki L, Butterworth P, Kavanagh A, LaMontagne AD. Does disability status modify the association between psychosocial job quality and mental health? A longitudinal fixed-effects analysis. *Social Science and Medicine*. 2015; 144:104-11.

6. Kavanagh AM, Aitken Z, Emerson E, Sahabandu S, Milner A, Bentley R, et al. Inequalities in socio-economic characteristics and health and wellbeing of men with and without disabilities: a cross-sectional analysis of the baseline wave of the Australian Longitudinal Study on Male Health. *BMC Public Health*. 2016; 16:1042.
7. Brucker DL. Food security among young adults with disabilities in the United States: Findings from the National Health Interview Survey. *Disability & Health Journal*. 2016; 9:298-305.
8. Coleman-Jensen A, Nord M. Food Insecurity Among Households With Working-Age Adults With Disabilities. Washington, DC: United States Department of Agriculture 2013.
9. Huang J, Guo B, Kim Y. Food insecurity and disability: Do economic resources matter? *Social Science Research*. 2010; 39:111-24.
10. World Health Organization. Closing the gap in a generation: Health equity through action on the social determinants of health. Final report of the Commission on the Social Determinants of Health. Geneva: World Health Organization; 2008.
11. World Health Organization and Calouste Gulbenkian Foundation. Social determinants of mental health. Geneva: World Health Organization 2014.
12. World Health Organization Regional Office for Europe. Report on social determinants of health and the health divide in the WHO European Region: Executive Summary. Copenhagen: World Health Organization Regional Office for Europe 2012.
13. Committee for the Coordination of Statistical Activities. How COVID-19 is changing the world: a statistical perspective. New York: UN Statistics Division 2020.
14. Office for National Statistics. Coronavirus and the social impacts on disabled people in Great Britain. London: Office for National Statistics 2020.
15. Office for National Statistics. Coronavirus and the social impacts on disabled people in Great Britain: May 2020. London: Office for National Statistics 2020.
16. World Health Organization. Disability considerations during the COVID-19 outbreak: Technical considerations. Geneva: World Health Organization 2020.
17. Office for National Statistics. Coronavirus (COVID-19) related deaths by disability status, England and Wales: 2 March to 15 May 2020. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/article/s/coronaviruscovid19relateddeathsbydisabilitystatusenglandandwales/2marchto15may2020>. London: Office for National Statistics 2020.
18. Office for National Statistics. Coronavirus and the social impacts on disabled people in Great Britain: September 2020. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/articles/coronavirusandthesocialimpactsondisabledpeopleingreatbritain/september2020#disabled-peoples-well-being-during-the-coronavirus-pandemic>. London: Office for National Statistics 2020.
19. Mitra S, Kruse D. Are workers with disabilities more likely to be displaced? . *The International Journal of Human Resource Management*. 2016; 27:1550-79.
20. International Labour Organization. COVID-19 and the World of Work: Ensuring the inclusion of persons with disabilities at all stages of the response. Policy Brief. Geneva: International Labour Organization 2020.
21. University of Essex. Institute for Social and Economic Research, NatCen Social Research, Kantar Public. Understanding Society: Waves 1-9, 2009-2018 and Harmonised BHPS: Waves 1-18, 1991-2009. 12th edition. UK Data Service. SN: 6614 <http://dx.doi.org/10.5255/UKDA-SN-6614-13>; 2019.
22. Buck N, McFall SL. Understanding Society: design overview. *Longitudinal and Life Course Studies*. 2012; 3:5-17.
23. Carpenter H. UK Household Longitudinal Study: Wave 9 technical report. London: Kantar, Public Division 2019.

24. Institute for Social and Economic Research. Understanding Society: The UK Household Longitudinal Study Waves 1-9, User Guide. Colchester, Essex: Institute for Social and Economic Research, University of Essex; 2019.
25. Institute for Social and Economic Research. Understanding Society COVID-19 User Guide Colchester, Essex: Institute for Social and Economic Research, University of Essex; 2020.
26. Gordon D. Measuring poverty in the UK. In: Dermott E, Main G, editors. Poverty and Social Exclusion in the UK: Volume 1. Bristol: Policy Press; 2018. p. 17-40.
27. Knol MJ, Le Cessie S, Algra A, Vandenbroucke JP, Groenwold RHH. Overestimation of risk ratios by odds ratios in trials and cohort studies: alternatives for logistic regression. *Canadian Medical Association Journal*. 2012; 184:895-9. DOI:10.1503/cmaj.101715.
28. Turk MA, McDermott S. The COVID-19 pandemic and people with disability. *Disability & Health Journal*. 2020; 13.
29. Lee S, Kim J. A country report: impact of COVID-19 and inequity of health on South Korea's disabled community during a pandemic. *Disability & Society*. 2020; 35:1514-9.
30. Armitage R, Nellums LB. The COVID-19 response must be disability inclusive. *Lancet Public Health*. 2020; 5:e235.
31. Boldrini P, Garcea M, Brichetto G, Reale N, Tonolo S, Falabella V, et al. Living with a disability during the pandemic. "Instant paper from the field" on rehabilitation answers to the COVID-19 emergency. *European Journal of Physical Rehabilitation Medicine*. 2020; 56:331-4.
32. Boyle CA, Fox MH, Havercamp SM, Zubler J. The public health response to the COVID-19 pandemic for people with disabilities. *Disability & Health Journal*. 2020.
33. Dan B. Long-term impact of COVID-19 on disabled children. *Developmental Medicine & Child Neurology*. 2020; 62:1004.
34. Jumreornvong O, Tabacof L, Cortes M, Tosto J, Kellner CP, Herrera JE, et al. Ensuring equity for people living with disabilities in the age of COVID-19. *Disability & Society*. 2020; 35:1682-7.
35. Eskyte I, Lawson A, Orchard M, Andrews E. Out on the streets – Crisis, opportunity and disabled people in the era of Covid-19: Reflections from the UK. *ALTER, European Journal of Disability Research*. 2020; 14:329–36.
36. Goggin G, Ellis K. Disability, communication, and life itself in the COVID-19 pandemic. *Health Sociology Review*. 2020; 29:168-76.
37. Lund EM. Interpersonal Violence Against People With Disabilities: Additional Concerns and Considerations in the COVID-19 Pandemic. *Rehabilitation Psychology*. 2020; 65:199–205.
38. Sabatello M, Blankmeyer Burke T, McDonald KE, Appelbaum PS. Disability, Ethics, and Health Care in the COVID-19 Pandemic. *American Journal of Public Health*. 2020; 110:1523–7.
39. Kavanagh A, Dickinson H, Carey G, Llewellyn G, E E, Disney G, et al. Improving health care for disabled people in COVID-19 and beyond: Lessons from Australia and England. *Disability and Health Journal*. in press.
40. Public Health England. Deaths of people identified as having learning disabilities with COVID-19 in England in the spring of 2020. London: Public Health England 2020.
41. ; Available from: <https://www.un.org/en/coronavirus/we-have-unique-opportunity-design-and-implement-more-inclusive-and-accessible-societies>.
42. VanderWeele T, Hernán M. Results on differential and dependent measurement error of the exposure and the outcome using signed directed acyclic graphs. *American Journal of Epidemiology*. 2012; 175:1303–10.

Table 1: Association between disability status and covariates (all N and % unweighted) at W9					
Covariates	People with Disabilities		People without Disabilities		Chi-SQ
	N	%	N	%	
Gender					
Men	768	35.8%	4453	40.9%	19.7(1), p<0.001
Women	1381	64.2%	6429	59.1%	
Age group					
16-19	24	1.1%	274	2.5%	225.2(5), p<0.001
20-29	185	8.6%	1585	14.6%	
30-39	302	14.1%	2023	18.6%	
40-49	451	21.0%	2711	24.9%	
50-59	753	35.0%	3008	27.6%	
60-64	434	20.2%	1281	11.8%	
Ethnicity					
White UK	1754	81.7%	8626	79.4%	10.4(5), p=0.064
White other	81	3.8%	492	4.5%	
Asian	181	8.4%	1105	10.2%	
Black	66	3.1%	341	3.1%	
Mixed	49	2.3%	235	2.2%	
Other	16	0.7%	59	0.5%	
Household income poverty (W9)					
Yes	611	29.1%	1736	16.3%	189.4(1), p<0.001
No	1490	70.9%	8890	83.7%	
Behind with household bills (W9)					
Yes	188	9.0%	440	4.2%	86.2(1), p<0.001
No	1907	91.0%	10147	95.8%	
Self-assessed financial position (W9)					
Living comfortably	367	17.2%	3267	30.3%	408.2(4), p<0.001
Doing alright	817	38.3%	4748	44.0%	
Just about getting by	614	28.8%	2092	19.4%	
Finding it quite difficult	227	10.7%	534	4.9%	
Finding it very difficult	106	5.0%	152	1.4%	

Table 2: Employment and Financial Security

	Prevalence		PRR	
	With disabilities	Without disabilities	Model 1	Model 2
<i>Employment</i>				
Employed Jan/Feb 2020	54.5% (50.5-58.5)	82.6% (81.1-84.0)	0.67*** (0.62-0.72)	0.71*** (0.67-0.76)
If employed Jan/Feb 2020, has since lost employment	3.8% (2.4-5.9)	4.9% (3.9-6.1)	0.95 (0.58-1.54)	0.92 (0.55-1.53)
If employed Jan/Feb 2020, currently working reduced hours when compared with Jan/Feb 2020	50.0% (45.5-54.4)	45.2% (43.5-46.9)	1.11* (1.01-1.22)	1.08 (0.98-1.19)
If employed Jan/Feb 2020, working hours reduced by more than 50%	44.1% (39.6-48.6)	37.6% (35.8-39.3)	1.18** (1.06-1.32)	1.12* (1.00-1.26)
<i>Food Poverty/Insecurity</i>				
Has used food bank in previous month	7.0% (4.9-9.7)	1.7% (1.2-2.3)	4.29*** (2.85-6.44)	2.64*** (1.72-4.06)
Has gone hungry in previous month (April only)	8.1% (6.3-10.2)	4.4% (3.6-5.3)	2.47*** (1.86-3.29)	1.74** (1.27-2.38)
<i>Debt</i>				
Behind on housing payments	14.5% (11.6-17.9)	9.5% (8.5-10.7)	1.65*** (1.30-2.09)	1.38* (1.08-1.76)
Behind with household bills	16.6% (13.8-19.9)	9.1% (7.9-10.5)	1.95*** (1.60-2.36)	1.24* (1.01-1.51)
<i>Self-assessed financial position</i>				
Difficult or very difficult	18.0% (15.0-21.5)	8.4% (7.3-9.7)	2.28*** (1.87-2.79)	1.39** (1.13-1.70)

Notes: * p<0.05, ** p<0.01, *** p<0.001

Model 1: for all variables adjusted for age group (as categorical variable), gender, ethnicity (6 class summary) and number of waves of COVID data.

Model 2 also adjusted for baseline (W9) financial situation (self-assessed, household income poverty, behind paying bills).