The Mental Health of British Adults with Intellectual

Impairments Living in General Households

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Abstract

Background: People with intellectual disability or borderline intellectual functioning may have poorer mental health than their peers. We sought to: (1) estimate the risk of poorer mental health among British adults with and without intellectual impairments; and (2) estimate the extent to which any between-group differences in mental health may reflect between-group differences in rates of exposure to common social determinants of poorer health.

Materials and Methods: We undertook secondary analysis of confidentialised unit records collected in Wave 3 of *Understanding Society*.

Results: British adults with intellectual impairments living in general households are at significantly increased risk of potential mental health problems than their non-disabled peers (e.g., GHQ-Caseness OR = 1.77, 95%CI(1.25-2.52), p<0.001). Adjusting for between-group differences in age, gender and indicators of socio-economic position eliminated this increased risk (GHQ-Caseness adjusted OR = 1.06, 95%CI(0.73-1.52), n.s).

Conclusions: Our analyses are consistent with the hypothesis that the increased risk of poor mental health among people with intellectual impairments may be attributable to their poorer living conditions rather than their intellectual impairments per se. Greater attention should be given to understanding and addressing the impact of exposure to common social determinants of mental health among marginalised or vulnerable groups.

Keywords

Introduction

Intellectual disability, as defined in ICD-10, refers to a significant general impairment in intellectual functioning that is acquired during childhood (World Health Organization, 1996). As stated in the relevant guidance notes 'adaptive behaviour is always impaired, but in protected social environments where support is available this impairment may not be at all obvious in subjects with mild [intellectual disability]' (p1, World Health Organization, 1996). As such, deficits in adaptive behaviour are seen as inevitable consequences of intellectual disability, rather than a requirement for the definition of intellectual disability (e.g., Schalock et al., 2010). Estimates of the prevalence of intellectual disability derived from epidemiological studies vary widely (e.g., 0.1%-15.6% see Table 1 Maulik et al., 2011), with pooled estimates in high income countries suggested a point prevalence of 0.92% (95% confidence intervals 0.85%-1.00%). However, it has been estimated by Public Health England that approximately 2% of the adult population of England have intellectual disability (Hatton et al., 2014). Borderline intellectual functioning is most commonly defined as scoring more than one standard deviation below the population mean on tests of general intelligence, with an estimated prevalence of 12-15% of the adult population (Salvador-Carulla et al., 2013, Peltopuro et al., 2014).

Previous research has suggested that people with intellectual disability have significantly higher rates of health problems, including mental health problems, than their non-disabled peers (Emerson and Hatton, 2014, Ruedrich, 2010). For example, there is robust evidence from a number of relatively well constructed population-based studies that children with intellectual disabilities or borderline intellectual functioning are more likely to have mental health problems and behavioral difficulties than their peers (Einfeld et al., 2011). UK studies, for example, suggest a point prevalence for any mental disorder (using ICD-10 criteria) of 36% for children with intellectual disabilities, compared to 8% of children without intellectual disabilities (Emerson and Hatton, 2007b). In contrast, evidence on the prevalence of mental health disorders among adults with intellectual disabilities is less robust due to some significant methodological challenges including developing sampling frames and methods that include and accurately identify adults with intellectual disability

(Buckles et al., 2013, Kerker et al., 2004). The available evidence does suggest that the prevalence of psychiatric disorders is significantly higher among adults who are identified by their GPs (family doctors) as having intellectual disability (35-41%), when compared to general population prevalence rates, although the extent of increased risk depends on choice of diagnostic methods (Cooper et al., 2007). However, GP records only identify a small proportion of adults with mild intellectual disability (Hatton et al., 2014). If GP identification of people with mild intellectual disability is more likely if the person also has mental health problems (a not unreasonable assumption), this identification bias this could lead to an overestimation of the prevalence of mental health problems among adults with intellectual disability.

There are, however, reasonable grounds for assuming that adults with intellectual disability are likely to have a higher risk of mental health problems. First, it is unlikely that the increased risk of mental health difficulties reported in population-based studies of children with intellectual disability should be age-specific. Second, the very small numbers of studies that have investigated the wellbeing of community-based samples of adults with mild or borderline intellectual disability tend to report relatively high rates of psychological and emotional difficulties (Emerson, 2011, Maughan et al., 1999, Hassiotis et al., 2008, Peltopuro et al., 2014). Third, there is quite extensive evidence from population-based studies that increased risk of common mental disorders is associated with lower intelligence (Mikkelsen et al., 2014, Rajput et al., 2011). Finally, adults with intellectual disabilities are at significantly greater risk than their peers of being exposed to common 'social determinants' of poorer mental health (World Health Organization and Calouste Gulbenkian Foundation, 2014) including childhood poverty, violence, unemployment and other social forms of social exclusion (Emerson, 2013, Jones et al., 2012, Hughes et al., 2012).

The latter observation raises the question of whether any increase in the prevalence of mental health problems among adults with intellectual disability or borderline intellectual functioning is related to the direct effects of intellectual disability per se or whether it may reflect their increased rate of exposure to common 'social determinants' of poorer mental health. Evidence

from child studies, for example, indicates that up to 50% of the increased risk of mental health difficulties among children with intellectual disability may be attributable to their increased rate of exposure to common 'social determinants' of poorer mental health (Emerson and Hatton, 2007a, Emerson and Hatton, 2007b).

The aims of the present paper are twofold: (1) to estimate the risk of potential mental health problems of British adults with and without intellectual impairments in a population-based general household sample; (2) to evaluate the extent to which any between-group differences in risk of potential mental health problems may reflect between-group differences in rates of exposure to socio-economic disadvantage.

Methods

We undertook secondary analysis of de-identified cross-sectional data from Wave 3 of *Understanding Society* (McFall and Garrington, 2011). Data were downloaded from the UK Data Archive (http://www.data-archive.ac.uk/). Full details of the survey's development and methodology are available in a series of reports (Buck and McFall, 2012, McFall, 2012b, McFall and Garrington, 2011, Boreham et al., 2012, McFall, 2012a), key aspects of which are summarised below.

Sample

Understanding Society is a longitudinal study focusing on the life experiences of UK citizens. 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 the Land and Property Services Agency list of domestic properties in Northern Ireland identified 55,684 eligible households. 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 co-operating households of 86% (McFall, 2012a, Buck and McFall, 2012). At Wave 3, interviews were completed with 49,768 individuals aged 16 or older from 27,715 households, giving an individual response rate within co-

operating households of 90% (McFall, 2012a). The follow-up response rate from Wave 2 to Wave 3 was 81% (McFall, 2012a).

Procedures

Data collection was primarily undertaken using Computer Assisted Personal Interviewing, including self-completion (CAPI).

Measures

Intellectual Impairments

Understanding Society does not include information on the formal diagnosis of intellectual disability or borderline intellectual functioning. As a result, we identified adults with intellectual impairments (as a possible proxy for intellectual disability and borderline intellectual functioning) on the basis of cognitive test results undertaken at Wave 3 and self-reported educational attainment. Low self-reported educational attainment was used as an additional selection criterion as potential evidence that low cognitive ability exhibited in adulthood *may* have originated in childhood, a defining characteristic of intellectual disability. Due to historical changes in educational qualifications and attainment in the UK, we restricted our analysis to the age range 18-49.

In Wave 3 a battery of three tests was used to assess cognitive functioning (Number Series, Verbal Fluency, Numerical Ability) (McFall, 2013). The Number Series test was developed for use in the US Health and Retirement Study (HRS) (Fisher et al., 2013). The Verbal Fluency test has been used in the English Longitudinal Study of Ageing (ELSA) (Llewellyn and Matthew, 2009), the German Socio-economic Panel Study (Lang et al., 2007) and the National Survey of Health and Development (Richards et al., 2004). The Numerical Ability test was taken from ELSA and some portions of it have been used in the HRS and Survey of Health, Ageing and Retirement in Europe (Banks et al., 2006).

First we standardised test scores on the latter three tests to have a mean of zero and standard deviation of one. Second, we imputed missing standardised test scores when a participant had at least one valid test score using linear regression. Third, we used principal components

analysis to extract the first component (which accounted for 63% of the variance) from the three scales as an estimate of general intelligence (Jones and Schoon, 2008). Fourth, we identified participants as having intellectual impairment if they scored two or more standard deviations below the mean on the extracted component and had no educational qualifications. Fifth, we included in the intellectual impairment group five participants who gave consent for testing but for whom all three tests were terminated due to their inability (as determined by the test administrator) to understand the test instructions, and also had no educational qualifications.

Finally, we identified participants as having borderline intellectual impairments if: (a) they scored at least one standard deviation below the mean on the extracted component; (b) their highest level of educational attainment was one or more award at General Certificate of Secondary Education (GCSE) level or equivalent; and (c) they had not been identified as having intellectual impairments. GCSE are subject-specific educational awards typically administered at age 15, prior to the age at which children are legally entitled to leave school (age 16). Overall 30.6% of the sample had a highest level of educational attainment of GCSE level or equivalent.

This procedure identified 263 participants (1.1% of the unweighted age-restricted sample) as having intellectual impairments and an additional 1,785 participants (7.6% of the unweighted age-restricted sample) as having borderline intellectual impairments.

Mental Health

Understanding Society contains two screening measures commonly used in large-scale health and social surveys to identify participants who may have mental health problems; the 12-item version of the General Health Questionnaire (GHQ-12) and the six-item mental health subscale of the SF-12. Both were administered solely as self-completion instruments. The GHQ-12 is a widely used and well-validated screening measure of risk of mental health problems, containing 12 items concerning self-rated symptoms over the past four weeks (six worded positively, six worded negatively) using four-point scales relating to the frequency or severity of the symptom in comparison to what is usual for the respondent (e.g. better than usual; same as usual; less than

usual; much less than usual). For this study the standard GHQ scoring method (0,0,1,1) was used with a relatively conservative threshold of 4+ being indicative of probable caseness (Goldberg et al., 1997, Goldberg and Williams, 1988). The SF-12 contains six items concerning mental health problems, self-assessed as present state or over a short time period, with different response options for different items and a standard norm-based algorithm used for combining item scores into a total mental health score (Ware et al., 1996b, Ware et al., 1996a). We used a cut off of 45.6 to identify participants with potential mental health problems (Vilagut et al., 2013).

Both screening measures were collected by computer-assisted self-completion, with an option for either the interviewer or another person to help with the self-completion if required. Self-completion rates and reasons given for non-completion are presented in Table 1.

[insert Table 1]

Socio-Economic Disadvantage

Five indicators of socio-economic disadvantage were extracted from data collected in Wave 3 of *Understanding Society*: household income poverty; low consumer durables; debt; self-assessed financial strain; and non-employment. Household income poverty was defined as household income over the previous month, adjusted using the modified Organization for Economic Co-operation and Development (OECD) equivalisation scale (Emerson et al., 2006) falling below 60% of the age-specific sample median. Low consumer durables was defined as falling in the bottom decile of ownership (fewer than 9) in the sample for 13 possible consumer durables: color television; video recorder/DVD player; satellite dish/Sky TV; cable TV; deep freeze or fridge freezer; washing machine; tumble drier; dish washer; microwave oven; home computer/PC; compact disc player; landline telephone; mobile telephone. Debt was defined by responding 2 or 3 to the following question; '*Sometimes people are not able to pay every household bill when it falls due. May I ask, are you up to date with all your household bills such as electricity, gas, water rates, telephone and other bills or are you behind with any of them (response options: 1 up to date with all bills; 2 behind with some bills; 3 behind with all bills)?*' Self-assessed financial strain was defined by response to the following

question; '*How well would you say you yourself are managing financially these days? Would you say you are... 1 Living comfortably, 2 Doing alright, 3 Just about getting by, 4 Finding it quite difficult, 5 or finding it very difficult?*'. In order to reduce the number of cells with small numbers in the analysis this scale was converted to a binary measure of living comfortably/doing alright v just about getting by/finding it quite difficult/finding it very difficult?' <u>Non-employment</u> was defined as not (for any reason) being in part or full-time paid employment.

Approach to Analysis

Understanding Society includes sample weights that can be used to adjust analyses to take account of biases in initial recruitment and attrition. In our preliminary analyses we weighted that data using the Wave 3 cross-sectional weight provided for the self-completion component of the interview (in which GHQ-12 and SF-12 data were collected). These analyses suggested that participants with intellectual impairments had *lower* rates of possible mental health problems on both the GHQ-12 and SF-12 when compared with participants with neither intellectual impairments nor borderline intellectual impairments (GHQ-12 16.9% v 19.5%, OR=0.84(0.54-1.32); SF-12 28.9% v 30.9%, OR=0.91(0.63-1.32)). Given the anomalous nature of this result (see Introduction) we investigated the impact of using the provided sample weights on these estimates and concluded that their use would: (1) significantly reduce the power of the analyses; and (2) introduce significant bias into the results. The reduction of power would arise as a significant proportion of respondents for whom GHQ scores were available (17% of the intellectual impairments sample, 16% of the borderline intellectual impairments sample and 14% of the non-intellectual impairments sample) were given a weight of 0. A weight of 0 means that the participants record is deleted from all analyses using that sample weight. The reduction in power would disproportionally effect the intellectual impairments samples ($\chi2$=6.54(2), p<0.05).

The introduction of bias would arise as the risk of meeting the criteria for GHQ caseness among participants with a weight of 0 was notably higher among the intellectual impairments

sample (OR=2.86, 95%CI(1.25-6.51)) and the borderline intellectual impairments sample (OR=1.57, 95%CI(1.17-2.09)) than among the non-intellectual impairments sample (OR=1.25, 95%CI(1.14-1.38)).

Thus, to use the provided sample weights would lead to a marked reduction in sample size (especially among the intellectual impairments samples) and the exclusion of participants with potential mental health problems (again, especially among the intellectual impairments samples). As a result of these observations, all main analyses were undertaken on unweighted data.

In the first stage of analysis we investigated unadjusted between group comparisons on variables of interest. In the second stage of analysis we used multivariate logistic regression in SPSS 20 to estimate the unadjusted and adjusted risk of potential mental health problems being associated with intellectual impairments and borderline intellectual impairments. In the adjusted models we first adjusted for between-group differences in gender and age. We then adjusted risk estimates to also take account of between-group differences in exposure to socio-economic disadvantage.

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*.

Results

Demographic characteristics of the three samples and rates of exposure to socio-economic disadvantage are presented in Table 2. As can be seen, participants with intellectual impairments or borderline intellectual impairments, when compared with other participants, were more likely to be women, slightly older and markedly more likely to be exposed to common social determinants of mental health problems.

[insert Table 2]

Risk of potential mental health problems are presented in Table 3. As can be seen, estimated risk of potential mental health problems was significantly greater among participants with intellectual impairments or borderline intellectual impairments when compared with other participants.

[insert Table 3]

Unadjusted and adjusted risk of potential mental health problems are presented in Table 4. Consistent with the data presented in Table 3 unadjusted risk of potential mental health problems was significantly greater among participants with intellectual impairments or borderline intellectual impairments when compared with other participants. Adjusting for between-group differences in gender and age had only a marginal influence on risk estimates. However, adjusting for between-group differences in exposure to socio-economic disadvantage: (1) eliminated the increased risk of meeting GHQ-12 caseness among participants with intellectual impairments or borderline intellectual impairments; (2) eliminated the increased risk of SF-12 mental health component caseness among participants with intellectual impairments; and (3) significantly attenuated the increased risk of SF-12 mental health component caseness among participants with borderline intellectual impairments.

[insert Table 4]

Repeating these analyses using weighted data suggested that, in the model adjusted for age, gender and socio-economic position, participants with intellectual impairments were significantly less likely than participants with neither intellectual impairments nor borderline intellectual impairments to screen positive for possible mental health problems on both the GHQ-12 and the SF-12 (GHQ-12 OR=0.54(0.34-0.86), p<0.01; SF-12 0.66(0.45-0.97), p<0.05). As noted above, we have concerns about the validity of using sample weights in these analyses.

Discussion

Our results indicate that: (1) British adults with intellectual impairments living in general households are at significantly increased risk of potential mental health problems than their non-disabled peers; and (2) that this risk may be attributable to their poorer living conditions rather than their intellectual impairments per se. These results add to existing knowledge about the health inequalities faced by people with intellectual disability and borderline intellectual functioning in three important ways.

First, they are based on the analysis of the largest contemporary population-based survey available for the UK that includes measures of adult cognitive functioning (Emerson and Hatton, 2014). Second, being based on samples drawn from general households, participants are likely to include adults with less severe intellectual disability who may not be in receipt of specialised disability services. Given that most intellectual disability research is based on convenience samples drawn from the users of specialised disability services, very little is currently known about the health or well-being of this group, often termed the 'hidden majority' of adults with intellectual disability (Emerson, 2011, Fujiura and Taylor, 2003). Third, this is the first study to carefully examine the possible confounding effects of the relationship between intellectual impairments and mental health among adults that may result from differential rates of exposure to well-established social determinants of poorer mental health.

However, there are seven limitations to the study that should be kept in mind when considering the salience and implications of these results. First and most importantly, it is not possible to estimate the sensitivity or specificity of the method used to identify participants with intellectual impairments and borderline intellectual impairments in our study in relation to formal diagnoses of intellectual disability and borderline intellectual functioning. As with all tests of cognitive ability, a number of possible reasons (beyond impaired intellectual functioning originating in childhood) may account for performing poorly (e.g., mental health problems, cognitive impairments acquired later in life, amotivation). It should be noted, however, that: (1) the overall

prevalence rates lies within the expected boundaries for intellectual disability and borderline

intellectual functioning (Emerson et al., 2013, Maulik et al., 2011, Salvador-Carulla et al., 2013,

Peltopuro et al., 2014); (2) consistent with the results of previous epidemiological research,

intellectual impairments were associated with indicators of low socio-economic position (Maulik et

al., 2011, Salvador-Carulla et al., 2013); and (3) intellectual functioning was directly assessed through

cognitive testing. One anomaly in the data, however, is that women were overrepresented in the

intellectual impairment samples when compared to the non-intellectually impaired sample, the

reverse of findings in epidemiological research on the prevalence of intellectual disability (Maulik et

al., 2011). Future research in this area may, in some jurisdictions, be able to use data linkage

between surveys and administrative data collected by primary health care and educational services

to identify participants with intellectual disability.

Second, we used low self-reported educational attainment as a selection criterion for

intellectual impairment as proxy evidence that low cognitive ability may have originated in

childhood. This is, of course, an imperfect proxy indicator given the range of factors contributing to

low educational attainment (Schneider, 2011).

Third, the use of a general household sampling frame excludes people living in institutional

forms of residential care, who are hospital inpatients, military personnel in barracks, prisoners and

people who are homeless. People with intellectual impairments and people with mental health

problems are likely to be overrepresented in some of these groups (those living in institutional forms

of residential care, hospital inpatients, prisoners). This may have introduced bias into the results if

rates of non-sampling varied between people with and without intellectual impairments who had

co-morbid mental health problems.

Fourth, the consent and interview procedures used in *Understanding Society* are likely to

exclude people with more severe intellectual disability from participating in the survey. For example,

there was no use in the interview process of pictorial aids or question rewording to support the

participation of people with cognitive limitations, both methods which have proved of value in large-

scale surveys of adults with intellectual disability (Malam et al., 2014). Consequently, the results are likely to be particularly relevant to understanding the self-rated health of British adults with less severe intellectual disability or borderline intellectual functioning. In addition, the validity of responses to more complex items (e.g., self-assessed financial status) among participants with intellectual impairments is unknown.

Fifth, the markedly higher rates of non-completion of the self-report measures among participants with intellectual impairments may have introduced additional bias into the results. Sixth, neither the GHQ nor the SF-12 have been validated on samples of people with (predominantly mild) intellectual disability. Given the increasing availability and usage of population-based survey data to understand the wellbeing of people with intellectual disability (e.g., Public Health England, 2015) increasing attention should be paid to determining the validity of commonly used self-report measures of general and mental health among participants with intellectual impairments (e.g., Emerson, 2005).

Finally, while the cross-sectional analyses presented in this paper are consistent with the hypothesis that the poorer self-rated health of adults with intellectual disability may be attributable to their poorer living conditions, it is not possible to rule out other explanations (e.g., people with intellectual disability, especially those with co-morbid mental health problems are more susceptible to downward social mobility than their non-disabled peers with poorer mental health,).

The results of our analyses are consistent with the hypothesis that the risk of poorer mental health among people with intellectual disability or borderline intellectual functioning may be attributable to their increased risk of exposure to well-established social determinants of poorer mental health rather than their intellectual impairments per se. There is abundant evidence that intellectual impairments increase the risk of exposure to these social determinants (Emerson and Hatton, 2014). As such, exposure may be considered to be a mediating pathway for the relationship between intellectual impairments and poorer mental health. It is important to keep in mind, however, that the link between intellectual impairments and exposure to social determinants of

poorer health is not inevitable. Rather, it is the result social and cultural practices that either discriminate against people with intellectual disabilities or borderline intellectual functioning or fail to make 'reasonable accommodations' to protect the living standards of people with intellectual disabilities or borderline intellectual functioning. Clearly, these social and cultural practices are potentially amenable to change through social policy interventions (e.g., reducing discrimination in access to employment, increasing the minimum wage, provision of higher rates of welfare benefits).

Acknowledgement

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Table 1: Self-Completion Rates and Reasons Recorded for Non-Completion

	Participants with II	Participants with BII	Participants with Neither II nor BII	Test Statistics
Full Sample	*n=269*	*n=1,785*	*n=21,466*	
Accepted Self-Completion	31%	70%	93%	χ2=2780.1(8), p<0.001
Accepted Self-Completion with Support from Interviewer	19%	10%	2%	
Accepted Self-Completion with Support from Other	8%	3%	<1%	
Refused	19%	11%	4%	
Unable to Do Self-Completion	24%	6%	1%	
Of Refusals …..	*n=52*	*n=201*	*n=954*	
Did not like the computer	31%	31%	11%	χ2=58.8(2), p<0.001
Child crying/needing attention	20%	16%	13%	χ2=2.8(2), n.s.
Worried about confidentiality	2%	3%	1%	χ2=4.6(2), n.s.
Concerned as someone else present	0%	4%	1%	χ2=13.3(2), p<0.01
Couldn't be bothered	18%	15%	11%	χ2=4.5(2), n.s.
Interview taking too long/ran out of time	43%	48%	69%	χ2=40.4(2), p<0.001
Other	23%	12%	6%	χ2=21.9(2), p<0.001
Of those unable to complete …..	*n=69*	*n=111*	*n=210*	
Eyesight problems	5%	3%	4%	χ2=0.5(2), n.s.
Reading/literacy problems	42%	26%	11%	χ2=31.8(2), p<0.001
Language problems	50%	46%	22%	χ2=28.6(2), p<0.001
Other	16%	32%	66%	χ2=61.1(2), p<0.001
NOTES: II – intellectual impairments; BII – borderline intellectual impairments				

Table 2: Demographic Characteristics and Exposure to Socio-Economic Disadvantage

	Participants with II (n=269)	Participants with BII (n=1,785)	Participants with Neither II nor BII (n=21,466)	Test Statistics
Demographic Characteristics				
Female gender	64%	65%	56%	χ2=52.6(2), p<0.001
Mean age	37.9	35.4	34.7	F=20.3(2), p<0.001
Married (including de facto)	70%	68%	70%	χ2=2.2(2), n.s.
Exposure to Socio-Economic Disadvantage				
Household income poverty	50%	44%	18%	χ2=803.6(2), p<0.001
Low consumer durables	36%	27%	13%	χ2=346.9(2), p<0.001
Debt	19%	16%	7%	χ2=217.7(2), p<0.001
Financial strain	66%	62%	42%	χ2=318.7(2), p<0.001
Not employed	70%	54%	26%	χ2=861.6(2), p<0.001
NOTES: II – intellectual impairments; BII – borderline intellectual impairments				

Table 3: Risk of Mental Health Problems

	Risk			Test Statistics
	Participants with II (n=147)	Participants with BII (n=1,443)	Participants with Neither II nor BII (n=19,953)	
GHQ caseness	31%	27%	20%	χ^2=43.3(2), p<0.001
SF-12 caseness	43%	44%	32%	χ^2=98.5(2), p<0.001
II – intellectual impairments; BII – borderline intellectual impairments				

Table 4: Unadjusted and Adjusted Risk (Odds Ratio with 95% Confidence Intervals) of Mental Health Problems

	Unadjusted Risk		Risk Adjusted for Age & Gender		Risk Adjusted for Age, Gender and Socio-Economic Position	
	Participants with II (n=146)	Participants with BII (n=1,433)	Participants with II	Participants with BII	Participants with II	Participants with BII
GHQ caseness	1.77**	1.44***	1.73**	1.40***	1.06	0.98
	(1.25-2.52)	(1.28-1.63)	(1.22-2.47)	(1.24-1.59)	(0.73-1.52)	(0.85-1.11)
SF-12 caseness	1.63**	1.68***	1.62**	1.65***	1.06	1.23***
	(1.17-2.25)	(1.51-1.88)	(1.11-2.25)	(1.48-1.84)	(0.76-1.49)	(1.10-1.38)
Notes II – intellectual impairments; BII – borderline intellectual impairments Participants with Neither II nor BII (n=21,088) are the reference group * $p<0.05$, ** $p<0.01$, *** $p<0.001$,						