

1 **Accepted Manuscript:**  
2 **Is the amount of**  
3 **exposure to aggressive**  
4 **challenging behaviour**  
5 **related to staff work-**  
6 **related well-being in**  
7 **intellectual disability**  
8 **services? Evidence from a**  
9 **clustered research design**



10

11

12

DOI:	<a href="https://doi.org/10.1016/j.ridd.2018.04.006">https://doi.org/10.1016/j.ridd.2018.04.006</a>
Please cite as:	Flynn, S., Hastings, R. P., Gillespie, D., McNamara, R., Randell, E. (2017). Is the amount of exposure to aggressive challenging behaviour related to staff work-related well-being in intellectual disability services? Evidence from a clustered research design. <i>Research in Developmental Disabilities</i> .

13

14 **Is the amount of exposure to aggressive challenging behaviour related to staff work-related**  
15 **well-being in intellectual disability services? Evidence from a clustered research design**

16 Samantha Flynn<sup>1</sup>, Richard P Hastings<sup>1,2</sup>, David Gillespie<sup>3</sup>, Rachel McNamara<sup>3</sup> & Elizabeth Randell<sup>3</sup>

17 <sup>1</sup> CEDAR, University of Warwick

18 <sup>2</sup> Centre for Developmental Psychiatry and Psychology, Department of Psychiatry, School of Clinical  
19 Sciences at Monash Health, Monash University

20 <sup>3</sup> Centre for Trials Research, Cardiff University

21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47

**Abstract**

**Background:** Previous research has demonstrated an association between aggressive challenging behaviour (CB) and reductions in work-related well-being for intellectual disability (ID) support staff. Much of this research has used subjective measures of CB.

**Aims:** To examine whether exposure to aggressive CB is associated with reduced work-related well-being in staff working in ID residential settings across the UK.

**Methods and procedure:** A cross-sectional analysis was undertaken as part of a randomised trial; 186 staff from 100 settings completed questionnaires on their CB self-efficacy, empathy, positive work motivation, and burnout. Objective measures of aggressive CB in the preceding 16 weeks were collected from each setting.

**Outcomes and results:** There was little association between staff exposure to aggressive CB and work-related well-being. Clustering effects were found for emotional exhaustion and positive work motivation, suggesting these variables are more likely to be influenced by the environment in which staff work.

**Conclusions and implications:** The level of clustering may be key to understanding how to support staff working in ID residential settings, and should be explored further. Longitudinal data, and studies including a comparison of staff working in ID services without aggressive CB exposure are needed to fully understand any association between aggressive CB and staff well-being.

**What this paper adds?**

This paper presents a unique method of data collection regarding staff exposure to aggressive challenging behaviour (CB), and takes into consideration the clustered nature of the data. In doing so, it is apparent that there is little evidence to suggest an association between staff exposure to aggressive CB and their work-related well-being. The clustering effects identified for two variables (emotional exhaustion and positive work motivation) have not been explored in previous research, and suggest an interesting avenue for future research.

## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR

48 **Keywords:** intellectual disability, challenging behaviour, work stress, well-being, social care staff,  
49 burnout

50

### 51 **Highlights**

- 52 • There was little relationship between exposure to aggressive CB and staff well-being
- 53 • Clustering was evident for emotional exhaustion and positive work motivation
- 54 • Comparisons between staff who work in settings with and without aggressive CB are needed

55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81

**1. Introduction**

Challenging behaviours (CB) are displayed by approximately one in five adults with intellectual disabilities (ID) known to services (Bowring et al., 2017), and are defined by their negative outcomes or effects, including their impact on other people in the person’s environment (Hastings et al., 2013). Such negative impact on other people can include physical harm, risk of such harm, and the restriction of community activities with the person who engages in CB. There are high quality longitudinal research data suggesting that family members (parents and siblings) living with children or adults with intellectual and developmental disabilities who display CB are also at risk of psychological harm (increased stress or mental health difficulties) (e.g., Baker et al., 2003; Hastings, 2007; Hastings et al., 2006; Minnes et al., 2007; Neece et al., 2012). Whether exposure to CB as a part of paid support or care work is associated with psychological harm, is less clear.

Reviewing the research literature more than 15 years ago, Hastings (2002) identified a significant methodological challenge. Families often contain only one child or adult with ID, and so measurement of the extent of their CB and its association with family members’ psychological distress is relatively straightforward. However, for staff in paid roles they often provide support to several individuals with ID. At least five methods have been used in the research literature to assess staff “exposure” to CB within multiple individual care settings and to explore relationships with staff work-related psychological outcomes. First, when asked to rate the extent to which they find different factors stressful at work staff rate CB as one of the most stressful (Hatton et al., 1995). However, this is not a direct measure of the extent to which CB causes staff psychological harm. Second, the well-being of staff working in a setting where people with CB reside has been compared to a setting where none of the residents displayed CB (Jenkins et al., 1997). However, there may be many ways in which two such compared services may differ and not just in the presence of CB. Third, CB has been directly rated using a behaviour problems questionnaire for each person in the care environment and exposure is assessed by using these scores for the individual for whom a staff member is the keyworker (Chung et al., 1996). Although a staff member may spend much of their time with an individual for whom they are the keyworker, it is not necessarily the case that during this time the

## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR

82 person engages in CB and also the staff member may be exposed to CB from other individuals in the  
83 care setting.

84 Two other methods have been used to examine exposure to CB amongst staff that more  
85 directly account for the fact that multiple individuals may display CB in the care environment. Fourth,  
86 staff have been asked to report on the level (or severity) of their exposure to CB over a recent period  
87 as associated with any of the individuals in their work environment (Hastings & Brown, 2002). This  
88 method addresses the problem of there being multiple individuals who could be the source of CB  
89 exposure, but does not capture either frequency of exposure or whether all or only some of the  
90 individuals in the care setting engage in CB. The final method of measuring staff exposure has been to  
91 ask staff to report on the proportion of the individuals in their care setting who engage in at least some  
92 CB (Freeman, 1984). This method again does not capture the frequency/total amount of exposure,  
93 although one would expect such dimensions of exposure to increase with the number of people in a  
94 setting who display some CB.

95 Since the Hastings (2002) seminal review, more recent research studies have used variations  
96 of the exposure measures outlined above, including: a single item rating of how frequently any of the  
97 individuals in the care setting display CB (Hensel et al., 2012; Mutkins et al., 2011); completing a  
98 rating scale about the CB of one individual in the care setting only (Chung & Harding, 2009; Mills &  
99 Rose, 2011); staff reports of the frequency of their exposure to violence within the care setting  
100 (Howard et al., 2009); and severity of exposure using the Hastings and Brown (2002) measure  
101 (Hensel et al., 2012). In all of these recent studies, researchers recruited staff from multiple different  
102 settings and services. However, none of the studies' analysis approaches recognized that staff were  
103 effectively nested within settings and that any exploration of the relationship between exposure to CB  
104 and staff work-related psychological variables should take account of the clustered nature of the data.  
105 These recent studies have essentially adopted a larger scale version of Jenkins et al.'s (1997) research  
106 design comparing staff in one CB service with staff in one non-CB setting. Differences between  
107 settings other than the extent of individuals' CB may explain variability in staff experiences and  
108 outcomes. As well as impacting staff psychological outcomes, CB can be influenced by staff

109 variables; for example, staff behaviour can result in or exacerbate CB for people with ID (Hastings et  
110 al., 2013).

111 In the present research, we adopted a research design that allowed for the effects associated  
112 with the service in which staff worked to be estimated. Two staff from each of a large number of  
113 settings were recruited as a part of a large scale randomized controlled trial (RCT) test of a staff  
114 training intervention (Hutchinson et al., 2014; Anonymous, 2017). The data within this paper were  
115 collected for the RCT, as such the variables being examined were related to the intended outcomes of  
116 the training intervention (to improve staff empathy and attitudes towards people who display CB). In  
117 addition, we extended previous research by using a new direct measure of aggressive CB within each  
118 care environment. We gathered data on the reported incidents of aggressive CB within the setting, and  
119 calculated the mean aggressive CB frequency over a 16 week period per individual residing in the  
120 care setting. Finally, we examined a range of staff psychological variables for their association with  
121 aggressive CB exposure including staff burnout as used in many previous studies, but also other  
122 psychological CB experience variables: staff empathy for people with CB, their efficacy/confidence in  
123 providing support to people with CB, and perceived positive experiences as a result of working with  
124 people with ID (Lunsky et al., 2014).

125  
126

## 2. Method

### 2.1. Participants

128 Staff from 118 residences for people with intellectual disabilities in the UK were invited to participate  
129 in the research; two staff per setting were invited (one manager/senior support worker and one support  
130 worker). For the purposes of the research, participants were categorised as being either a manager or  
131 support worker, based on their responses to an initial question; this categorisation was separate to  
132 participants' reported job roles/titles. Of those approached, 186 participants from 100 settings  
133 completed the questionnaires. Participants worked within Residential Care Homes and Supported  
134 Living services, and were from various service providers throughout England and Wales. All settings  
135 were screened for study eligibility before they were admitted to the RCT study; screening questions  
136 pertained to the number of staff and residents within the setting, and the number of residents who

137 displayed aggressive CB. Within the settings, there was a median number of nine full-time (IQR: 4 to  
138 15) and four part-time (IQR: 2 to 6) staff per setting, and five (IQR: 3 to 7) residents living within the  
139 settings. There was a median number of two residents who displayed some aggressive CB (IQR: 1 to  
140 4 individuals).

141 The majority of participants were female (78%), and had a mean age of 40 years (SD: 11.5  
142 years). Participants held a co-ordinator role (3.6%), managerial role (47.1%), leader role (13.0%), or  
143 support worker role (35.5%), and there was one Assistant Psychologist (0.7%). Participants had been  
144 in their current role for a mean of 2.4 years (IQR: 1.0 to 7.0 years), had been working with people  
145 with intellectual disabilities for a median of 10.0 years (IQR: 5.3 to 15.0 years), and had worked in  
146 Health or Social Care for a median of 11.0 years (IQR: 6.7 to 18.4 years). The majority of participants  
147 held a formal health or social care qualification (80%) and worked full-time (89%).

148

## 149 **2.2. Materials**

150 **2.2.1. Maslach Burnout Inventory – Human Services version.** The Maslach Burnout Inventory  
151 (MBI; Maslach et al., 1996) human services version is a 22 item measure with three subscales:  
152 emotional exhaustion, depersonalisation, and personal accomplishment. The emotional exhaustion  
153 subscale measures staff perceptions of being drained from their work (e.g. “I feel fatigued when I get  
154 up in the morning and have to face another day on the job”), the depersonalisation subscale  
155 determines whether staff have a detached or cynical attitude towards the people they support (e.g. “I  
156 worry that this job is hardening me emotionally”), and the personal accomplishment subscale asks  
157 about the respondents’ level of personal accomplishment at work (e.g. “I feel I’m positively  
158 influencing other people’s lives through my work”). The MBI items are scored using a 7-point Likert-  
159 type scale (1=Never; 2=A few times a year or less; 3=Once a month or less; 4=A few times a month  
160 or less; 5=Once a week; 6=A few times a week; 7=Every day). The combination of high scores on the  
161 emotional exhaustion and depersonalisation subscales and a low score on the personal  
162 accomplishment subscale is indicative of burnout. In previous research (Hastings et al., 2004) the  
163 MBI has been found to have good psychometric qualities for staff in intellectual disability settings  
164 (emotional exhaustion:  $\alpha = .87$ ; depersonalisation:  $\alpha = .68$ ; personal accomplishment:  $\alpha = .76$ ).



165           **2.2.2. Incidents of Aggressive Challenging Behaviour in Residential Homes.** This question  
166 serves as a record of aggressive CB within the residential settings. Each service manager was  
167 provided with a definition of aggressive CB and was asked to report the total number of recorded  
168 incidents of aggressive CB within the service, based on the definition. Aggregated data for each  
169 outcome across the service were requested for the 16 weeks preceding participant data collection.

170           **2.2.3. Staff Empathy for People with Challenging Behaviour Questionnaire.** The Staff  
171 Empathy for People with Challenging Behaviour Questionnaire (SECBQ; Hutchinson et al., 2014) is a  
172 five item measure. Items include “I can relate to the everyday problems faced by people with  
173 intellectual disability/autism and challenging behaviour”, and are scored using a six-point Likert scale  
174 (1=Disagree strongly to 6=Agree strongly). A high score on the SECBQ indicates high staff empathy  
175 towards people who have CB. Previous research (Hutchinson et al., 2014) has found that the  
176 Cronbach’s alpha for this scale is good ( $\alpha = .72$ ).

177           **2.2.4. Challenging Behaviour Self-efficacy Scale.** The Challenging Behaviour Self-efficacy  
178 Scale (CBSE; Hastings & Brown, 2002) is a five item measure, scored on a seven-point Likert scale.  
179 Items relate to feelings of confidence, control and satisfaction in dealing with CB, a perception that  
180 staff have a positive impact on the CB they deal with, and a rating of how difficult they find it to work  
181 with CB. An example of the items is: “To what extent do you feel in control of the challenging  
182 behaviours of the people with a learning disability you care for?” A high total score on the CBSE  
183 demonstrates that staff have high CB self-efficacy. This scale has been found to have a good level of  
184 internal consistency in previous research ( $\alpha = .81$ ) (Hutchinson et al., 2014).

185           **2.2.5. Staff Positive Contributions Questionnaire.** The short version (Lunsky et al., 2014) of  
186 the Staff Positive Contributions Questionnaire (Hastings & Horne, 2004) has 11 items and measures  
187 staff’s positive experiences at work. Items are each rated on a four-point Likert scale (1=Strongly  
188 disagree to 4=Strongly agree), an example item is “I consider working with people with  
189 developmental disabilities to be the reason I am able to cope better with stress and problems.” From  
190 the scale, two subscale scores can be derived for general positive contributions (5 items) and positive  
191 work motivation (3 items). In previous research (Lunsky et al., 2014) the Cronbach’s alpha for  
192 General positive contributions was .828 and Positive work motivation was .875.

193

**194 2.3. Procedure**

195 The study was approved by the Social Care Research Ethics Committee for England  
196 (15/IED08/0030). Staff were recruited as part of a RCT (Anonymous, 2017). Two participants in each  
197 setting were sent a full information sheet and were given the opportunity to ask questions about the  
198 research. If agreeable to the study, participants provided their written consent and completed a self-  
199 report questionnaire. Participants returned the questionnaire to the research team using a FREEPOST  
200 envelope or by email.

201

**202 2.4. Analysis**

203 Non-parametric (Spearman's) correlation was used to provide an initial measure of association  
204 between staff measures and the number of incidents of aggressive CB per resident over the preceding  
205 16 week period. Partial correlations were estimated using Pearson's product moment correlation  
206 coefficient, adjusting for staff type (manager/support worker) and length of time staff had worked in  
207 their current role. Point biserial correlations are used when one variable is dichotomous (i.e., staff  
208 type). The unadjusted Pearson's correlation coefficients are provided to illustrate the impact of the  
209 adjustment.

210 Two-level linear mixed models were fitted to account for the clustered nature of staff within  
211 residential settings. The models regressed staff measures (SECBQ; CBSE; emotional exhaustion,  
212 depersonalisation, personal accomplishment subscales of the MBI; and the positive work motivation  
213 subscale of the staff positive contributions questionnaire) onto a categorised version of the incidents  
214 of aggressive CB per resident measure. The model also adjusted for staff type and length of time staff  
215 had worked in their current role as control variables. For the latter, a natural logarithm transformation  
216 was applied to improve model fit. The general positive contributions subscale of the staff positive  
217 contributions questionnaire violated regression assumptions and was not amenable to transformation,  
218 so is not reported.

219 Regression coefficients are reported alongside 95% confidence intervals and p-values. The  
220 intraclass correlation coefficient is also reported for each model. This provides an indication of the

221 proportion of the variance (in the respective model) that is attributable to the (100 different) work  
222 settings.

223

### 224 3. Results

225 Table 1 provides the correlation between staff measures and exposure to aggressive CB. Both adjusted  
226 and unadjusted coefficients show that there was negligible correlation between these variables.

227

228 [INSERT TABLE 1 HERE]

229

230 As shown in Figure 1, the distribution of the incidents of aggressive CB per resident variable  
231 was highly skewed. Incidents per resident ranged from 0 to 292 (mean = 12, median = 4). This  
232 exposure variable was therefore categorised into four roughly equal-sized groups for analysis  
233 purposes (Table 2).

234

235 [INSERT FIGURE 1 HERE]

236

237 [INSERT TABLE 2 HERE]

238

239 Table 3 describes the associations between exposure to aggressive CB and staff measures of  
240 empathy, self-efficacy, burnout, and positive work perceptions. There was no evidence of an  
241 association between exposure to aggressive CB and any of these variables. There was negligible  
242 clustering by residential home for the models focusing on depersonalisation, personal accomplishment  
243 (ICC = 0 for both), and self-efficacy (ICC = 0.02). The ICC for staff empathy was 0.10 (i.e. 10% of  
244 the total variation in the staff empathy model was attributable to differences between residential  
245 homes). The models focusing on emotional exhaustion and positive work motivation produced the  
246 largest ICCs (0.33 and 0.40 respectively), indicating that these measures may be more similar within  
247 staff working in the same settings (compared to staff in other settings).

248

249 [INSERT TABLE 3 HERE]

250

251

#### 4. Discussion

252 This cross-sectional analysis explored the association between exposure to aggressive CB and work-  
253 related well-being in a broad sample of ID staff in the UK who had some exposure to CB within their  
254 work environment. Our findings show little evidence to suggest that exposure to aggressive CB is  
255 associated with staff psychological variables. This is contrary to some recently published research  
256 (e.g., Hensel et al., 2012; Howard et al., 2009; Mills & Rose, 2011) and previous expectations that  
257 such a relationship is likely to exist (Hastings, 2002). However, not all published research has found  
258 an association between exposure to CB and staff work-related well-being (e.g., Chung et al. 1996;  
259 Chung & Corbett, 1998; Mutkins et al., 2011).

260 The present study is not conclusive evidence that there is no association between exposure to  
261 aggressive CB and staff work-related well-being. Within this sample, all participants were exposed to  
262 some degree of aggressive CB within their work setting. Mutkins et al. (2011) also found no  
263 relationship between burnout and well-being in ID support staff; similarly to the present study, all  
264 participants in Mutkins et al.'s study were exposed to at least some CB. The key level of exposure  
265 may be between no exposure to CB at work and some/any exposure (cf. Jenkins et al., 1997). Future  
266 research should include a comparison group of ID support staff who are not exposed to aggressive CB  
267 to ascertain whether staff who are exposed to some aggressive CB are at a greater risk of negative  
268 psychological consequences than staff who are not exposed to any aggressive CB within their work  
269 environment. Current research, including our own, is limited by the lack of longitudinal designs  
270 (although we measured exposure independently of staff report, and for a period that preceded staff  
271 responses to questionnaire measures). It is possible that gradual exposure to CB over time, and the  
272 associated negative emotional reactions experienced (Hastings, 2002; Mossman et al., 2002), does  
273 affect staff well-being. It may also be possible that we did not see a main effect association as staff  
274 workplace support impacts the hypothesised relationship between exposure to aggressive CB and  
275 work-related wellbeing, although we did not directly measure staff workplace support in this study.

## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR

276           We found a strong clustering effect for two of the staff variables (emotional exhaustion and  
277 positive work motivation). The remaining two dimensions of burnout (depersonalisation and personal  
278 accomplishment) did not show this clustering effect. This finding requires replication, but may have  
279 important implications for understanding and supporting staff well-being at work in ID services.  
280 Emotional exhaustion in particular may be more influenced by the environment in which staff work.  
281 Similarly, positive work motivation was putatively influenced by the environment in which staff  
282 work. Based on the reported ICCs, setting level (as opposed to staff-focused) well-being interventions  
283 (e.g., team building activities, staff social and emotional support systems within settings) may be  
284 more likely to affect staff emotional exhaustion and positive work motivation. Setting level  
285 interventions would be worth exploring in future research.

286           A large sample of ID staff working in residential settings were recruited to this study from  
287 multiple service providers across the UK. Although the sample was large, the representativeness of  
288 the sample is in question given the RCT recruitment context. As this study emanated from a RCT, the  
289 factors under consideration were restricted to those within the larger study; other factors may also be  
290 important to consider (e.g., the duration or severity of aggressive CB, contextual factors, emotional  
291 intelligence), besides those within this paper (Grey, Hastings, & McClean, 2007; Knotter et al., 2013;  
292 Willems, Embregts, Hendriks, & Bosman, 2016). Despite limitations, the present study is the first to  
293 account for within-setting clustering effects when exploring the relationship between exposure to  
294 aggressive CB and staff work-related well-being. The reported ICCs show that designs accounting for  
295 clustering are crucial since for some staff variables, the effect of clustering within settings was  
296 substantial. Although reliant on formally completed incident records, our measure of exposure to  
297 aggressive CB in this study was an objective direct exposure measure and was based on records  
298 completed in real time (as opposed to relying on staff memory of their exposure). Of course, there is a  
299 possibility that some of the reports were inaccurate. However, the sample size precluded obtaining  
300 meaningful reliability data for these data given the significant resources that would be required across  
301 over 100 residential settings. Thus, it is important to bear in mind that we may have found the

302 investigated association between challenging behaviour and staff outcomes with higher quality reports  
303 about challenging behaviour.

304

### 305 **4.1. Conclusions**

306 We found no evidence of an association between exposure to aggressive CB and staff work-related  
307 well-being in ID staff in the UK who have some exposure to CB within their work environment. The  
308 clustering seen within the data for two variables indicates that emotional exhaustion and positive work  
309 motivation are more substantially influenced by working environment than the other variables within  
310 this study. This may be an important factor in understanding how organisations can best prepare and  
311 support their staff on an individual and service-wide basis. Future research should consider  
312 longitudinal designs, and ideally comparisons should be drawn between settings where there is  
313 exposure to aggressive CB and where there is no exposure to CB at all.

314

### 315 **Acknowledgements**

316 We would like to thank the Who's Challenging Who? trial team, and in particular Rosie Knight, for  
317 assisting in the data collection for this study.

318

### 319 **Funding source**

320 National Institute for Health Research School for Social Care Research (CO88/T14-035/WURH-P64).  
321 This report is independent research by the National Institute for Health Research School for Social Care  
322 Research. The views expressed in this publication are those of the author(s) and not necessarily those  
323 of the NIHR SSCR, NHS, the National Institute for Health Research or the Department of Health.

324 **References**

- 325 Anonymous. (2017).
- 326 Baker, B. L., McIntyre, L. L., Blacher, J., Crnic, K., Edelbrock, C., & Low, C. (2003). Pre-school  
327 children with and without developmental delay: Behaviour problems and parenting stress over  
328 time. *Journal of Intellectual Disability Research*, 47, 217-230.
- 329 Bowring, D., Totsika, V., Hastings, R. P., Toogood, S., & Griffith, G. M. (2017). Challenging  
330 behaviours in adults with an intellectual disability: A total population study and exploration of  
331 risk indices. *British Journal of Clinical Psychology*, 56, 16-32.
- 332 Chung, M. C., Corbett, J., & Cumella, S. I. P. R. (1996). Relating staff burnout to clients with  
333 challenging behaviour in people with a learning difficulty: Pilot study 2. *The European Journal  
334 of Psychiatry*, 10(3), 155-165.
- 335 Chung, M. C., & Corbett, J. (1998). The burnout of nursing staff working with challenging behaviour  
336 clients in hospital-based bungalows and a community unit. *International Journal of Nursing  
337 Studies*, 35(1-2), 56-64.
- 338 Chung, M. C., & Harding, C. (2009). Investigating burnout and psychological well-being of staff  
339 working with people with intellectual disabilities and challenging behaviour: The role of  
340 personality. *Journal of Applied Research in Intellectual Disabilities*, 22(6), 549-560.
- 341 Freeman, M. (1994). The differential impact on carers dealing with clients with challenging behaviours.  
342 *Journal of Community and Applied Social Psychology*, 4, 181-187.
- 343 Grey, I. M., Hastings, R. P., & McClean, B. (2007). Staff training and challenging behaviour. *Journal  
344 of Applied Research in Intellectual Disabilities*, 20(1), 1-5.
- 345 Hastings, R. P. (2002). Do challenging behaviors affect staff psychological well-being? Issues of  
346 causality and mechanism. *American Journal on Mental Retardation*, 107(6), 455-467.

## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR

- 347 Hastings, R. P. (2007). Longitudinal relationships between sibling behavioral adjustment and behavior  
348 problems of children with developmental disabilities. *Journal of Autism and Developmental*  
349 *Disorders, 37*, 1485-1492.
- 350 Hastings, R. P., & Brown, T. (2002). Coping strategies and the impact of challenging behaviors on  
351 special educators' burnout. *Mental Retardation, 40*(2), 148-156.
- 352 Hastings, R., & Horne, S. (2004). Positive perceptions held by support staff in community mental  
353 retardation services. *American Journal on Mental Retardation, 109*(1), 53-62.
- 354 Hastings, R. P., Horne, S., & Mitchell, G. (2004). Burnout in direct care staff in intellectual disability  
355 services: A factor analytic study of the Maslach Burnout Inventory. *Journal of Intellectual*  
356 *Disability Research, 48*, 268-273.
- 357 Hastings, R. P., Daley, D., Burns, C., & Beck, A. (2006). Maternal distress and Expressed Emotion:  
358 Cross-sectional and longitudinal relationships with behavior problems of children with  
359 intellectual disabilities. *American Journal on Mental Retardation, 111*, 48-61.
- 360 Hastings, R. P., Allen, D., Baker, P., Gore, N. J., Hughes, J. C., McGill, P., Noone, S. J., & Toogood,  
361 S. (2013). A conceptual framework for understanding why challenging behaviours occur in  
362 people with developmental disabilities. *International Journal of Positive Behavioural Support,*  
363 *3*(2), 5-13.
- 364 Hatton, C., Brown, R., Caine, A., & Emerson, E. (1995). Stressors, coping strategies and stress-related  
365 outcomes among direct care staff in staffed houses for people with learning disabilities. *Mental*  
366 *Handicap Research, 8*, 252-271.
- 367 Hensel, J. M., Lunsy, Y., & Dewa, C. S. (2012). Exposure to client aggression and burnout among  
368 community staff who support adults with intellectual disabilities in Ontario, Canada. *Journal*  
369 *of Intellectual Disability Research, 56*(9), 910-915.



## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR

- 370 Howard, R., Rose, J., & Levenson, V. (2009). The psychological impact of violence on staff working  
371 with adults with intellectual disabilities. *Journal of Applied Research in Intellectual*  
372 *Disabilities*, 22(6), 538-548.
- 373 Hutchinson, L. M., Hastings, R. P., Hunt, P. H., Bowler, C. L., Banks, M. E., & Totsika, V. (2014).  
374 Who's Challenging Who? Changing attitudes towards those whose behaviour  
375 challenges. *Journal of Intellectual Disability Research*, 58(2), 99-109.
- 376 Jenkins, R., Rose, J., & Lovell, C. (1997). Psychological well-being of staff working with people who  
377 have challenging behaviour. *Journal of Intellectual Disability Research*, 41, 502-511.
- 378 Knotter, M. H., Wissink, I. B., Moonen, X. M., Stams, G. J. J., & Jansen, G. J. (2013). Staff's attitudes  
379 and reactions towards aggressive behaviour of clients with intellectual disabilities: A multi-  
380 level study. *Research in developmental disabilities*, 34(5), 1397-1407.
- 381 Lunskey, Y., Hastings, R. P., Hensel, J., Arenovich, T., & Dewa, C. (2014). Perceptions of positive  
382 contributions and burnout in community developmental disability workers. *Intellectual and*  
383 *Developmental Disabilities*, 52, 249-257.
- 384 Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory Manual*, 3rd edn.  
385 Mountain View, CA: Consulting Psychologists Press.
- 386 Mills, S., & Rose, J. (2011). The relationship between challenging behaviour, burnout and cognitive  
387 variables in staff working with people who have intellectual disabilities. *Journal of Intellectual*  
388 *Disability Research*, 55(9), 844-857.
- 389 Minnes, P., Woodford, L., & Passey, J. (2007). Mediators of well-being in ageing family carers of  
390 adults with intellectual disabilities. *Journal of Applied Research in Intellectual*  
391 *Disabilities*, 20, 539-552.
- 392 Mossman, D. A., Hastings, R. P., & Brown, T. (2002). Mediators' emotional responses to self-injurious  
393 behavior: An experimental study. *American Journal on Mental Retardation*, 107, 252-260.

## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR

- 394 Mutkins, E., Brown, R. F., & Thorsteinsson, E. B. (2011). Stress, depression, workplace and social  
395 supports and burnout in intellectual disability support staff. *Journal of Intellectual Disability*  
396 *Research, 55*(5), 500-510.
- 397 Neece, C. L., Green, S. A., & Baker, B. L. (2012). Parenting stress and child behavior problems: A  
398 transactional relationship across time. *American Journal on Intellectual and Developmental*  
399 *Disabilities, 117*, 48-66.
- 400 Willems, A. P. A. M., Embregts, P. J. C. M., Hendriks, L., & Bosman, A. (2016). Towards a framework  
401 in interaction training for staff working with clients with intellectual disabilities and challenging  
402 behaviour. *Journal of Intellectual Disability Research, 60*(2), 134-148.

403 **Table 1:** Correlation between staff measures and exposure to aggressive challenging behaviour

Staff measure	Incidents of aggressive CB in the previous 16-weeks (per resident)	
	Unadjusted correlation*	Partial correlation <sup>†</sup>
<b>Empathy towards people with an intellectual disability and CB</b>	-0.028 (0.033)	0.039
<b>CB self-efficacy</b>	0.033 (0.160)	0.165
<b>Emotional exhaustion</b>	0.068 (-0.050)	-0.050
<b>Depersonalisation</b>	-0.008 (-0.063)	-0.066
<b>Personal accomplishment</b>	0.052 (0.045)	0.049
<b>General positive contributions</b>	-0.086 (-0.210)	-0.204
<b>Positive work motivation</b>	-0.043 (-0.239)	-0.231

404 \*Based on Spearman's rank correlation coefficient (PPMCC in brackets for direct comparison with the  
 405 partial correlations). †Based on Pearson's product moment correlation coefficient. Adjusted for length  
 406 of time staff have worked in the setting and staff type (manager or support worker).

407

408 **Table 2:** Summary statistics for the incidents of aggressive challenging behaviour per resident

Percentile Group of incidents of aggressive CB per resident	N	Mean	SD	Median	Minimum	Maximum
1	52	0.33	0.30	0.27	0.00	0.90
2	48	1.97	0.95	1.73	1.00	3.80
3	52	6.77	2.26	6.21	3.83	11.25
4	50	39.40	58.32	17.00	11.80	292.00
<b>Total</b>	<b>202</b>	<b>12.05</b>	<b>32.92</b>	<b>3.83</b>	<b>0.00</b>	<b>292.00</b>

409

410

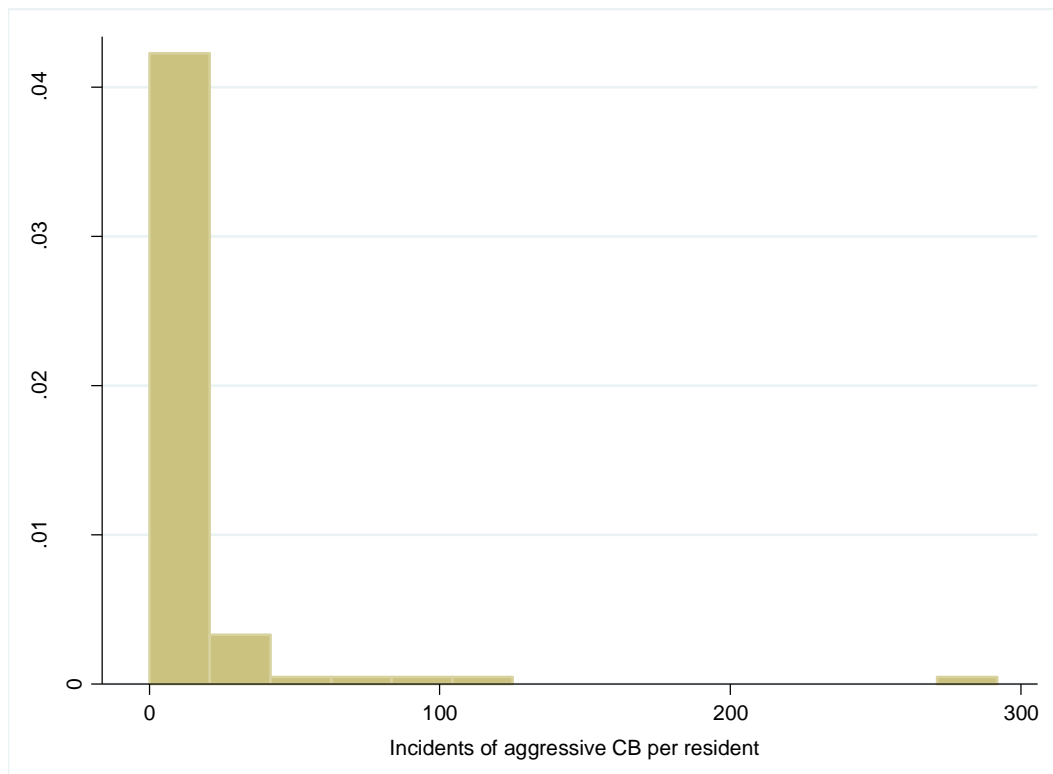
411 **Table 3:** Multivariable linear mixed models of the association between incidents of aggressive  
 412 challenging behaviour per resident and staff measures

Staff measures	Model estimates*		Incidents of aggressive CB per resident			
			0 to 0.9	1 to 3.8	3.83 to 11.25	11.8 to 292
<b>Staff empathy</b> (186 staff within 100 settings)	<b>Coefficient</b>	Ref	0.06	-0.37	-0.29	
	<b>(95% CI)</b>		(-1.47 to 1.58)	(-1.83 to 1.09)	(-1.77 to 1.20)	
	<b>p-value</b>		0.929			
	<b>ICC</b>		0.10			
<b>Self-efficacy</b> (185 staff within 100 settings)	<b>Coefficient</b>	Ref	1.30	-0.01	0.98	
	<b>(95% CI)</b>		(-0.37 to 2.97)	(-1.63 to 1.60)	(-0.65 to 2.62)	
	<b>p-value</b>		0.285			
	<b>ICC</b>		0.02			
<b>Emotional exhaustion</b> (184 staff within 100 settings)	<b>Coefficient</b>	Ref	1.31	2.51	1.54	
	<b>(95% CI)</b>		(-3.07 to 5.69)	(-1.71 to 6.73)	(-2.76 to 5.85)	
	<b>p-value</b>		0.710			
	<b>ICC</b>		0.33			
<b>Depersonalisation</b> (184 staff within 100 settings)	<b>Coefficient</b>	Ref	-0.29	0.14	0.11	
	<b>(95% CI)</b>		(-1.45 to 0.88)	(-0.98 to 1.26)	(-1.04 to 1.25)	
	<b>p-value</b>		0.887			
	<b>ICC</b>		0.00			
<b>Personal accomplishment</b> (185 staff within 100 settings)	<b>Coefficient</b>	Ref	0.53	1.74	0.80	
	<b>(95% CI)</b>		(-1.98 to 3.05)	(-0.69 to 4.16)	(-1.68 to 3.27)	
	<b>p-value</b>		0.558			
	<b>ICC</b>		0.00			
<b>Positive work motivation</b> (185 staff within 99 settings)	<b>Coefficient</b>	Ref	-0.70	0.59	0.04	
	<b>(95% CI)</b>		(-2.06 to 0.66)	(-0.73 to 1.90)	(-1.31 to 1.38)	
	<b>p-value</b>		0.323			
	<b>ICC</b>		0.40			

413 \*Model estimates adjusted for staff type (manager / support staff) and length of time staff had worked  
 414 in their role (in years).

415

## STAFF WELL-BEING AND EXPOSURE TO CHALLENGING BEHAVIOUR



416

417 **Figure 1:** Distribution of incidents of aggressive challenging behaviour per resident

418