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Towards a framework in interaction training for staff working with clients with intellectual disabilities and challenging behaviour

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Abstract

Background Training support staff in dealing with challenging behaviour in clients with intellectual disabilities (ID) is needed. The goal of this study is to determine which elements need to be incorporated in a training on staff interactions with these clients, building upon a framework and an interpersonal model. As in functional analysis, this study tests the influence of client interpersonal behaviour, three types of staff reactions to challenging behaviour, two types of staff psychological resources and staff team climate on four styles of staff interpersonal behaviour. *Method* A total of 318 support staff members completed a questionnaire on staff interpersonal behaviour for 44 clients with ID and challenging behaviour, as well as seven questionnaires on client interpersonal behaviour, staff emotions, attributions, self-efficacy, self-reflection, coping styles and team climate. The influence of these seven factors on four staff interpersonal behaviours was examined using multilevel multiple regression analysis.

Results Friendly-warm and dominant client interpersonal behaviour had a significant positive impact on friendly and assertive control staff behaviour, respectively. Also, there was a strong influence of staff negative and positive emotions, as well as their self-efficacy, on most of the staff interpersonal behaviours. Staff self-reflection, insight and avoidance-focused coping style had an impact on some staff interpersonal behaviours. Staff team climate only predicted higher support-seeking staff behaviour.
Conclusions In conducting a functional analysis of staff interpersonal behaviour, the results of this study can be used both as a framework in staff–client interaction training and in clinical practice for treating challenging behaviour. The emphasis in training and practice should not only be on the bidirectional dynamics of control and affiliation between staff and clients, but also – in order of importance – on the impact of staff emotions, self-efficacy, self-reflection and insight, coping style, team climate and attributions on staff interpersonal behaviour.

Keywords challenging behaviour, intellectual disability, staff training, interpersonal model, staff–client interaction, framework

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Introduction

Within the field of clients with intellectual disabilities (ID) and challenging behaviour (CB), there is sufficient proof that staff need training in order to support their clients adequately (van Oorsouw, Embregts, Bosman, & Jahoda, 2009). Recent reviews categorised the content of such training in (1) reducing CB, (2) managing CB, and (3) coping with CB (Cox, Dube, & Temple, 2015; van Oorsouw, Embregts, & Bosman, 2013; Stoesz et al., 2014). Regarding the reduction of CB, most research was on the improvement of several staff skills, as in active support, positive behaviour support and, more recently, solution-focused coaching (Roeden, Maaskant, Bannink, & Curfs, 2012). With respect to managing CB, the emphasis was on staff knowledge and beliefs about CB. The most studies regarding coping with CB were on dealing with staff emotions, stress and attitudes, with a growing interest in aspects like staff emotional intelligence (Zijlmans, Embregts, Bosman, & Willems, 2012).

Research on these topics is valuable and mostly based upon a bottom-up empirical stance, but '[..] for researchers to be aware that they are examining only a part of a larger whole consisting of multiple interacting dynamic systems', a top-down theoretical stance is also needed (Sameroff, 2010). Sameroff's multilevel dynamic systems model could be very useful in delineating a structural framework for behaviour, by making a distinction between a biopsychological self system and several contexts. Focusing on staff behaviour in the field of ID and CB, Hastings (2005) offered a first step towards such a framework in which several personal and contextual determinants are suggested regarding the effect of staff beliefs, emotional reactions, stress, psychological resources and working culture on staff behaviour.

Based upon a framework, we constructed a large-scale cross-sectional study on determinants of staff behaviour, because in conducting such a functional analysis (Grey, Hastings, & McClean, 2007), it is possible to identify the relative contribution of several determinants and thereby gather evidence for the essential ingredients to be incorporated in a comprehensive staff-training curriculum.

Regarding staff behaviour, we agree with Hastings (2005) that most research has been on staff actual behavioural responses to ID clients with CB (Huitink, Embregts, Veerman & Verhoeven, 2011; Wilderjans,

Lambrechts, Maes & Ceulemans, 2014) and not so much on other dimensions of staff relationships with these clients, like warmth, conflict, and balance or equity (Hastings, 2010). One way to broaden this scope is the field of care ethics, where professional loving care (Embregts, 2011; van Heijst, 2005) emphasises aspects of high-quality interpersonal relationships between professional and client. Both in a review on challenges of ID care (Jackson, 2011) and in recent studies on professional loving care (Hermsen, Embregts, Hendriks, & Frielink, 2014) and the dialogical perspective (Hostyn, Daelman, Janssen, & Maes, 2010), it is recommended that staff training focuses on relational elements. Therefore, Willems, Embregts and colleagues (2010, 2014), independently from Hastings' (2010) plea for theoretically driven research on bidirectional relationships, started using interpersonal circumplex models in their research, as described by Leary (1957), Schaefer (1965) and Benjamin (1974, 1996;, 2003). In these models, two robust orthogonal dimensions of control (dominance-submission) and affiliation (love/warm–hate/cold) have been demonstrated (Birtchnell, 2014). The strengths of these models are the premise of bidirectionality in relationships between staff and clients with ID and CB and predicting interpersonal behaviour of both partners using principles of complementarity and similarity or reciprocity, which also Hinde (1995) in his structure for a science of relationships considers to be two important aspects of relationships.

In line with bidirectional circumplex models on staff–client relationships, it is particularly important to investigate the influence of interpersonal behaviour of the ID client with CB, especially how staff perceive this (Back et al., 2011), on staff interpersonal behaviour (Willems *et al.*, 2014).

A second domain of interest consists of several types of staff reactions when confronted with CB, as proposed in Hastings' (2005) framework. Especially, negative emotional reactions of staff have proven to be of some influence on staff behaviour (Hastings, 2005; Zijlmans et al., 2012), and Jones and Hastings (2003) suggested to include also positive emotional reactions. Another type of reactions consists of staff causal beliefs or attributions, being the locus of causality (cause is within the client or external), stability (cause is invariant or changeable) and control (whether the cause is controllable), which should be

separated in a personal and an external controllability dimension (McAuley, Duncan & Russell, 1992). In addition to emotions and attributions, self-efficacy beliefs have proven to exert a pervasive influence on behaviour (Caprara, Vecchione, Barbarenelli, & Alessandri, 2013), and in staff, self-efficacy plays a significant role in dealing with CB (Cudré-Mauroux, 2011). In summary, exploring the influence of staff emotional reactions, attributions and self-efficacy on staff interpersonal behaviour when dealing with an individual ID client with CB is warranted.

Along with client interpersonal behaviour and staff reactions, Hastings (2005) and Rose (2011) propose to also take general psychological resources of staff into account as a third domain of interest. Referring to a comprehensive psychological model of Ford (1987), these can be found in the so-called governing functions of a person, being his goals or motives, his intelligence and his self-regulation capacity (e.g., executive functions like self-reflection and coping). In this study, the focus will be on self-regulation and executive functions, because these are considered to be essential for planning behaviour, controlling cognitions and handling emotional reactions (Hofmann, Schmeichel, & Baddeley, 2012; Lezak, 1982). As staff members are frequently required to adjust their own behaviour in working with ID clients with CB, self-reflection and insight are key factors in the self-regulatory process supporting change in staff behaviour (Grant, Franklin, & Langford, 2002). Also, it is important to investigate staff coping strategies in handling staff emotional reactions and stress (Hastings & Brown, 2002b; Hatton, Brown, Caine, & Emerson, 1995). Regarding staff psychological resources, it is therefore interesting to investigate the influence of self-reflection, insight and coping strategies on staff interpersonal behaviour.

As a fourth domain, in line with Sameroff's (2010) and Hastings' (2005) plea to incorporate contextual factors, we include staff team climate, because the informal working culture of teams as key players in a long-term ID care setting is considered to be influential (Buljac-Samardžić, 2012; Hastings, 2005). Therefore, we are interested in how team climate of support staff influences their behaviour towards ID clients with CB.

Based upon this framework and in order to determine which elements need to be incorporated in a staff training curriculum on interaction with ID clients with CB, in this study, we will examine the following research question: do client interpersonal behaviour (control and affiliation), staff reactions to CB (emotions, attributions and self-efficacy), staff psychological resources (self-reflection, insight and coping style) and staff context (team climate) influence staff interpersonal behaviour (assertive control, hostile, friendly and support-seeking) towards ID clients and CB, controlling for client characteristics (gender, age, level of ID and type of CB) and staff characteristics (gender, age and education level)?

Method

Participants and setting

A total of 318 support staff members employed in nine facilities for people with IDs, working in 44 teams, participated in the present study, which was carried out in the Netherlands in 2013–2014. Fifty-one percent of staff worked within the context of residential settings and 49% provided community-based support. Most of the 318 staff members were women, with a mean age of 36 years (Table 1). Half of the staff members had a senior 3-year secondary vocational education in the domain of nursing, social work or occupational therapy. Regarding the 44 clients with ID and CB – one client per team – we included almost as many mild ID clients as clients with lower ID and somewhat more male than female clients. Ten clients were younger than 18 years. Most of these clients showed externalising behaviour in the clinical range (88.6%), and 47.7% of the clients also showed internalising behaviour in the clinical range.

Procedure

The study was approved by the scientific and ethics committee from the largest participating organisation, and all clients or their legal representatives signed a consent form. Management of the organisations gave permission for the participation of their staff members. Teams of support staff working with ID clients and CB were recruited with help from the management and psychologists of the nine facilities, only including teams having serious concerns about their working relationship with a specific client. In total, 46 teams participated,

Table 1 Descriptive characteristics of support staff and clients

Support staff		$n = 318$
Female (%)		76.4 ($n = 243$)
Age (years)		
	M	36
	SD	10.7
	Range	19–63
Education level (%)		
	General secondary education	6 ($n = 19$)
	Senior secondary vocational education	52.8 ($n = 168$)
	Higher professional education	41.2 ($n = 131$)
Job experience (years)		
	M	12.2
	SD	9.3
	Range	1–45
Clients		$n = 44$
Male (%)		61.4 ($n = 27$)
Age (years)		
	M	30.9
	SD	15.8
	Range	10–65
ID level (%)		
	Mild	47.7 ($n = 21$)
	Moderate	40.9 ($n = 18$)
	Severe/profound	11.4 ($n = 5$)
Challenging behaviour[†]		
	Internalising (clinical range)	59.1 ($n = 26$)
	Externalising (clinical range)	88.6 ($n = 39$)
	Both (clinical range)	47.7 ($n = 21$)

[†]all clients showed internalising and/or externalising behaviour in the clinical range
ID, Intellectual disability.

focusing on one particular client with ID and CB who was chosen by the team. Of the 394 questionnaires sent to these nine facilities, 339 were returned, resulting in a response rate of 86% (range between facilities 78–94%). We excluded two teams who worked solely in an occupational setting with their client, as well as 13 staff members with incomplete data, resulting in a final sample of 318 staff members in 44 teams. All questionnaires for their client were completed by different numbers of staff members in each team, ranging from 2 to 15 ($M = 7.2$, $SD = 2.6$). Because it took staff members 1.5 h on average to complete all staff questionnaires, the first author rewarded each team by conducting workshops that offered practical suggestions for the treatment of their CB client.

Instruments

First, support staff answered some questions on staff characteristics, such as gender, age, training level and job experience. Furthermore, data on client characteristics, such as age, gender and ID level, were provided by the personal staff member of that client.

Type of challenging behavior

Adult/Child Behavior Checklist

To determine whether clients had borderline or clinical levels of CB, only the personal staff member of the client rated the Adult or Child Behavior Checklist (ABCL/CBCL, Achenbach, 2009).

Translations and published reports of ABCL/CBCL are available in many languages, also in Dutch (Achenbach, Verhulst, Baron, & Akkerhuis, 1987). The ABCL/CBCL has good to excellent reliability and validity outcomes (Achenbach & Rescorla, 2001, 2003003) and has also been used in ID research (Matson, Belva, Hattier & Matson, 2012).

Staff interpersonal behaviour: assertive control, hostile, friendly, support-seeking

Staff–Client Interactive Behaviour Inventory

Next, all staff members completed the Staff–Client Interactive Behaviour Inventory (SCIBI), to measure staff interpersonal behaviour towards an individual client with ID and CB. The development, validity and mostly good Cronbach's α values of this instrument are described in Willems et al. (2010, 2012). The SCIBI includes 30 questions, using a 5-point Likert scale, and in this study, only the outcomes on the four interpersonal staff behaviours were used: (1) assertive control; (2) hostile interpersonal behaviour; (3) friendly interpersonal behaviour; and (4) support-seeking interpersonal behaviour.

Domain 1: client interpersonal behaviour: control and affiliation

Dutch Interpersonal Adjectives Scales (Nederlandse Interpersoonlijke Handelingen Schalen)

All staff members also completed the Nederlandse Interpersoonlijke Handelingen Schalen (NIHS-other form, Rouckhout & Schacht, version 3, 2008), to measure client interpersonal behaviour on a 5-point Likert scale. The NIHS has 116 items, based on the aforementioned interpersonal model, consisting of the two orthogonal dimensions dominance-submissiveness (control-dimension) and love–hate (affiliation-dimension). It has displayed good to excellent internal consistency (Cronbach's αs ranging from 0.77 to 0.92), good construct validity and good convergent validity (Rouckhout & Schacht, 2000, 2008).

Domain 2: staff reactions to the intellectually disabled client with challenging behavior: emotions, attributions and self-efficacy

Emotional Reactions to Challenging Behaviour Scale

The Emotional Reactions to Challenging Behaviour scale in its newer version (ERCB, Jones & Hastings, 2003) contains two negative emotional subscales with 15 4-point Likert items on fear/anxiety and depression/anger and two positive emotional subscales with eight items on confident/relaxed and cheerful/excited. The questionnaire was first translated into Dutch and checked by a native speaker. The internal consistency of the four subscales was good, ranging from 0.69 to 0.86 (Jones & Hastings, 2003; Mitchell & Hastings, 1998) and Cronbach's αs for the translated version in this study were higher than 0.80, showing good internal consistency (Table 2).

Revised Causal Dimensions Scale-II

To measure attributions, staff rated the revised Causal Dimensions Scale-II (CDS-II, McAuley et al., 1992), adapted by Jones and Hastings (2003), being a state measure assessing individual perceptions of causes in particular situations. The CDS-II has 12 9-point items, three for each of the four dimensions in attributions, being (1) locus of causality (within the client or external), (2) stability (invariant or changeable), (3) external controllability (others can regulate or have no control over it), and (4) personal controllability (client can regulate or has no power over it). The questionnaire was first translated into Dutch and checked by a native speaker. The original and adapted scales have good internal consistency (Cronbach's αs ranging from 0.65 to 0.92) and adequate construct validity (Jones & Hastings, 2003; McCauley *et al.*, 1992). Cronbach's αs for the translated version in this study were between 0.64 and 0.74, showing acceptable internal consistency, except for the dimension stability (Table 2).

Difficult Behaviour Self-efficacy Scale

Furthermore, staff self-efficacy in relation to CB was measured using the Difficult Behaviour Self-Efficacy Scale (DBSES, Hastings & Brown, 2002a). The DBSES consists of five 7-point Likert items: (1) feeling of confidence in dealing with his CB; (2) feeling of control in dealing with his CB; (3) satisfaction in the ways staff deals with his CB; (4) perception that staff has a positive impact on his CB; and (5) a rating how difficult staff finds it to work with his CB (rated adversely in the total score). The questionnaire was first translated into Dutch and checked by a native speaker. This scale displayed an excellent level of internal consistency (Cronbach's α value of 0.94; Hastings &

Table 2 Descriptive statistics and reliability of the instruments in this study

	Mean (possible range)	SD	Min–Max	Cronbach's α
Staff interpersonal behaviour SCIBI				
Assertive control	3.03 (1–5)	0.72	1–4.7	0.81
Hostile	2.82 (1–5)	0.76	1–5	0.63
Friendly	3.77 (1–5)	0.74	1.4–5	0.86
Support-seeking	1.70 (1–5)	0.71	1–4.3	0.67
Domain 1. Client interpersonal behaviour NIHS				
Control	0.26 (−9.7–9.7)	1.8	−4.2–7.1	0.89
Affiliation	2.11 (−9.7–9.7)	2.11	−5.3–6.8	0.90
Domain 2. Staff reactions to CB				
Emotional reactions ERCB				
Positive emotions	3.24 (0–6)	1.17	0–6	0.84
Negative emotions	0.91 (0–6)	0.61	0–3.8	0.82
Attributions CDS-II				
Stability	5.06 (1–9)	1.36	1.3–8.7	0.28
Locus inside	6.32 (1–9)	1.47	1.3–9	0.74
External controllability	5.45 (1–9)	1.40	1.7–8.7	0.64
Personal controllability	3.95 (1–9)	1.60	1.0–9	0.71
Self-efficacy DBSES	5.04 (1–7)	0.93	1.8–6.6	0.85
Domain 3. Staff psychological resources				
Self-reflection and Insight SRIS				
Self-reflection	3.71 (1–5)	0.59	1.7–5	0.92
Insight	3.80 (1–5)	0.42	1.9–4.9	0.72
Coping styles CISS				
Task-focused coping	3.75 (1–5)	0.38	2.6–4.9	0.80
Emotion-focused coping	2.18 (1–5)	0.55	1.1–3.9	0.88
Avoidance-focused coping	2.93 (1–5)	0.62	1.3–4.8	0.86
Domain 4. Staff context				
Team climate dTCI	17.83 (5–25)	2.17	9.2–24.9	0.93

SCIBI, Staff–client Interactive Behaviour Inventory; CB, challenging behavior; ERCB, Emotional Reactions to Challenging Behaviour; CDS-II, Causal Dimensions Scale-II; DBSES, Difficult Behaviour Self-efficacy Scale; SRIS, Self-reflection and Insight Scale; CISS, Coping Inventory for Stressful Situations; dTCI, Dutch Team Climate Inventory.

Brown, 2002a) and also a high Cronbach's α of 0.85 for the translated version in this study (Table 2).

Domain 3: staff psychological resources: self-reflection, insight and coping styles

Self-Reflection and Insight Scale

Staff also completed the Self-Reflection and Insight Scale SRIS, (Grant, Franklin & Langford, 2002), consisting of 20 5-point Likert items, which measures self-reflection, consisting of both engagement in reflection and need for reflection, and insight. The questionnaire was first translated into Dutch and checked by a native speaker. Cronbach's α values for internal consistency were good, ranging from 0.71 to 0.91 in several studies, and construct validity was

adequate (Grant et al., 2002; Roberts & Stark, 2008). Cronbach's αs were 0.92 and 0.72 for the translated version in this study (Table 2).

Coping Inventory for Stressful Situations

Staff coping styles were measured by completing the Coping Inventory for Stressful Situations (Endler & Parker, 1999) in a Dutch version (CISS, de Ridder & van Heck, 2004). It consists of 48 items using a 5-point Likert scale, with three subscales: (1) task-focused coping; (2) emotion-focused coping; and (3) avoidance-focused coping. It has displayed good to excellent internal consistency (Cronbach's αs ranging from 0.70 to 0.90), acceptable test–retest reliability and good construct validity (de Ridder & van Heck, 2004).

Domain 4: staff context: team climate

Dutch team climate inventory

Staff completed the Dutch Team Climate Inventory (dTCI, Ouwens et al., 2008), which is a Dutch translation of the TCI constructed by Anderson and West (1994). The dTCI measures team climate as a whole and consists of 38 5-point Likert items with five subscales, being (1) vision, (2) interaction and information sharing, (3) support for innovation, (4) task orientation, and (5) participation safety. Anderson and West (1998) provided adequate evidence for the factor structure, reliability and predictive validity of the TCI, and also in the Dutch version, internal consistency of the five subscales was very good, ranging from 0.83 to 0.93.

Statistical analysis

The data are hierarchical and staff members are nested within clients, which necessitates a multilevel analysis (Hox, 2002; Snijders & Bosker, 2012), using MLwiN 2.23 (Rasbash et al., 2000). Level 1 were the staff members ($n = 318$), and level 2 were the clients ($n = 44$).

In earlier studies (Willems et al., 2010, 2014), the influence of several client and staff characteristics on staff interpersonal behaviour was demonstrated. Therefore, the complete set of independent variables was entered into one full model, including client and staff characteristics, in order to assess their unique influence on staff interpersonal behaviour (Snijders & Bosker, 2012).

Four consecutive multilevel regression analyses were conducted on the dependent variables of staff interpersonal behaviour. There were 14 independent variables that can be grouped (cf. Table 2) in four clusters or domains, in line with the framework presented in the Introduction: client interpersonal behaviour, staff reactions to CB, staff psychological resources, and staff context. All variables (dependent and independent) that had an interval measurement level were standardised. The following categorical variables were coded by dummies: (1) gender of client, female; (2) ID level of client, moderate and mild; (3) internalising CB, borderline and clinical; (4) externalising CB, borderline and clinical; (5) total CB, borderline and clinical; (6) gender of support staff, female; and (7) education level of support staff,

senior secondary vocational education and higher professional education.

The effects of client and staff characteristics, being dummies, were analysed in comparison with the following case, as intercept referring to a male client, with severe/profound ID level, with normal internalising, externalising or total CB and for a male staff member with general secondary education and scoring the mean on all other variables, except the dependent variable.

In order to test whether a full model with all these independent variables would make a significant improvement in model fit and to assess its amount of explained variance, it was compared with a null model with no independent variables, using chi-squared statistics (Snijders & Bosker, 2012).

Results

Preliminary analysis

To check the reliability of all subscales, all Cronbach's αs in this study are presented in Table 2, as well as the means, standard deviations and range of the data. The reliability of almost all subscales was sufficient ($0.6 < \alpha < 0.7$) to good ($\alpha > 0.7$), except for the dimension stability in attributions, which was therefore excluded in subsequent analyses.

The influence of client and staff characteristics on staff interpersonal behaviour

In order to report the results on the unique influence of the 14 independent variables on staff interpersonal behaviour, it is necessary to first discuss the influence of client and staff characteristics (Table 3), as several of these have been shown to be important (Willems et al., 2010, 2014).

Regarding client characteristics, age of ID clients with CB has a negative ($\beta = -0.11$, $P = 0.04$) impact on levels of friendly behaviour. Second, staff reported lower friendly behaviour in working with a moderate ($\beta = -0.30$, $P = 0.01$) and mild ($\beta = -0.46$, $P = 0.03$) ID level client with CB as opposed to a severe or profound ID level client, and they reported higher hostile behaviour in working with mild ID level clients when compared with a severe of profound ID level client ($\beta = 0.73$, $P = 0.04$). Third, only internalising CB of clients had a significant influence on staff behaviour. When clients showed borderline levels of

Table 3 Multilevel regression models for staff assertive control behaviour, hostile behaviour, friendly behaviour and support-seeking behaviour,

| | Staff interpersonal behaviour | | | | | | | | | | | |
| | Assertive control | | | Hostile | | | Friendly | | | Support-seeking | | |
	effect β/se	P-value		effect β/se	P-value		effect β/se	P-value		effect β/se	P-value
Intercept	1.13/0.61	0.06		1.28/0.59	0.04		−1.07/0.36	0.006		0.90/0.44	0.049
Client characteristics											
Gender: female	0.29/0.18	0.13		0.09/0.18	0.60		0.15/0.11	0.17		0.01/0.13	0.91
Age	0.001/0.09	0.99		0.12/0.08	0.16		−0.11/0.05*	0.04		0.04/0.06	0.52
ID level											
Moderate-severe	0.003/0.33	0.99		0.45/0.32	0.16		−0.30/0.11**	0.009		0.31/0.22	0.16
Mild-severe	0.12/0.35	0.74		0.73/0.33*	0.04		−0.46/0.20*	0.03		0.25/0.23	0.30
Type CB											
Internalising											
Borderline-normal	0.10/0.30	0.76		0.70/0.29*	0.02		0.40/0.18*	0.03		−0.09/0.21	0.68
Clinical-normal	−0.67/0.25*	0.01		−0.34/0.24	0.16		0.40/0.14**	0.009		−0.001/0.17	0.99
Externalising											
Borderline-normal	−0.15/0.86	0.86		−0.88/0.82	0.29		0.35/0.47	0.45		−0.50/0.54	0.36
Clinical-normal	−0.10/0.82	0.90		−0.66/0.78	0.40		0.55/0.45	0.23		−0.63/0.52	0.24
Total											
Borderline-normal	−0.69/0.61	0.26		−0.98/0.58	0.10		0.59/0.32	0.07		−0.43/0.36	0.24
Clinical-normal	−0.51/0.52	0.33		−0.93/0.50	0.07		0.30/0.28	0.29		−0.18/0.31	0.57
Staff characteristics											
Gender: female	−0.11/0.12	0.37		−0.05/0.12	0.70		0.04/0.09	0.64		−0.35/0.13**	0.005
Education level											
Senior vocational-general	−0.30/0.20	0.14		−0.20/0.21	0.33		0.21/0.16	0.20		−0.05/0.22	0.81
Higher professional-general	−0.16/0.21	0.46		−0.08/0.22	0.72		0.23/0.17	0.18		−0.08/0.23	0.71
Domain 1. Client interpersonal behaviour											
Control	0.13/0.07*	0.04		0.12/0.07	0.07		−0.06/0.05	0.25		0.01/0.07	0.91
Affiliation	0.01/0.07	0.91		0.04/0.07	0.54		0.33/0.06***	0.0000		−0.04/0.07	0.61
Domain 2. Staff reactions to CB											
Emotional reactions											
Positive emotions	0.05/0.06	0.41		0.06/0.06	0.37		0.16/0.05**	0.001		0.06/0.07	0.35
Negative emotions	0.19/0.06**	0.002		0.14/0.06*	0.03		−0.05/0.05	0.34		0.29/0.06***	0.0000
Attributions											
Locus inside	0.04/0.05	0.49		−0.04/0.05	0.47		−0.02/0.04	0.68		−0.07/0.05	0.22
External controllability	0.09/0.05	0.08		0.001/0.05	0.99		0.08/0.04*	0.046		0.05/0.06	0.34
Personal controllability	−0.03/0.05	0.52		−0.02/0.05	0.70		−0.03/0.04	0.45		−0.02/0.05	0.72
Self-efficacy	0.17/0.07*	0.01		0.16/0.07*	0.02		0.17/0.06**	0.003		0.11/0.08	0.15
Domain 3. Staff psychological resources											
Self-reflection and insight											
Self-reflection	−0.11/0.06*	0.04		−0.17/0.05**	0.001		−0.03/0.05	0.53		−0.06/0.06	0.30
Insight	−0.12/0.05*	0.03		0.11/0.06	0.05		−0.08/0.04	0.07		−0.12/0.06*	0.04
Coping styles											
Task-focused	−0.03/0.06	0.54		0.01/0.06	0.85		0.02/0.05	0.71		0.03/0.06	0.67
Emotion-focused	0.07/0.06	0.21		0.08/0.06	0.18		0.03/0.05	0.56		0.15/0.06*	0.01
Avoidance-focused	0.03/0.05	0.60		0.06/0.05	0.22		0.13/0.04**	0.002		0.11/0.05*	0.046

Table 3. *(Continued)*

	Staff interpersonal behaviour							
	Assertive control		Hostile		Friendly		Support-seeking	
	effect β/se	*P*-value	effect β/se	*P*-value	effect β/se	*P*-value	effect β/se	*P*-value
Domain 4. Staff context								
Team climate	0.07/0.05	0.21	0.03/0.06	0.56	0.08/0.04	0.06	0.16/0.05**	0.003
Random effects								
Intercept level 2 (client)	0.172		0.144		0.022		0.004	
Intercept level 1 (staff)	0.594		0.641		0.413		0.761	
Fit in null model, intercept	839.27		852.76		841.03		900.92	
Fit in full model, all predictors (IGSLS Deviance)	785.05 (n = 318)		802.46 (n = 318)		635.39 (n = 318)		817.2 (n = 318)	
χ^2 (df = 27)	54.21**		50.3**		205.64*****		83.71*****	
Full model total explained variance	0.23		0.22		0.56		0.24	

*$P < 0.05$
**$P < 0.01$
***$P < 0.001$
*****$P\ 0.0000$
ID, intellectual disability; CB, challenging behavior.

internalising CB as opposed to normal levels of internalising CB, staff reported higher levels of hostile behaviour ($\beta = 0.70$, $P = 0.02$) but also higher levels of friendly behaviour ($\beta = 0.40$, $P = 0.03$). Staff also reported much more friendly behaviour ($\beta = 0.40$, $P = 0.009$) when the level of internalising CB was clinical than when the level of internalising CB was normal, and in that case, staff also reported lower assertive control behaviour ($\beta = -0.67$, $P = 0.01$)

Regarding staff characteristics, only staff gender had a very significant influence on staff behaviour, namely, that female staff reported lower support-seeking behaviour towards clients with CB compared with male staff ($\beta = -0.35$, $P = 0.005$).

Domain 1: the influence of client interpersonal behaviour on staff interpersonal behaviour

Table 3 shows that client interpersonal control behaviour (being more dominant) was associated with higher staff assertive control behaviour ($\beta = 0.13$, $P = 0.04$) and that client interpersonal affiliation behaviour (being more warm and friendly) was very strongly associated with higher friendly staff behaviour ($\beta = 0.33$, $P = 0.001$). Both findings were in line with our hypotheses from the bidirectional mechanisms in interpersonal models, albeit the

expected association between higher client affiliation and lower staff hostile behaviour was not confirmed.

Domain 2: the influence of staff reactions to challenging behaviour on staff interpersonal behaviour

Regarding staff reactions to CB, first, their emotional reactions had a very strong influence on their interpersonal behaviour, especially their negative emotions (anxiety, fear, depression and anger), which predicted strongly higher assertive control behaviour ($\beta = 0.19$, $P = 0.002$), higher hostile behaviour ($\beta = 0.14$, $P = 0.03$) and very strongly higher support-seeking behaviour ($\beta = 0.29$, $P = 0.0000$), which were all in line with our hypotheses. Also in line with our hypothesis, staff positive emotions (confident, relaxed, cheerful and excited) were strongly associated with higher friendly behaviour ($\beta = 0.16$, $P = 0.001$), but the expected association with lower hostile behaviour was not confirmed.

Second, regarding staff attributions or beliefs on the cause of CB, only one of the three expected associations was confirmed, namely, that staff having an attribution of external controllability, being the belief that others can regulate the CB of this client, reported higher levels of friendly staff behaviour

($\beta = 0.08$, $P = 0.05$). The expected association between locus of the cause for CB inside the client and lower hostile behaviour and between personal controllability (the belief that the client himself can regulate his CB) and higher hostile behaviour was not found.

Third, staff-perceived self-efficacy in relation to the CB of their specific client strongly predicted much higher friendly behaviour in staff ($\beta = 0.17$, $P = 0.003$), as well as higher assertive control behaviour in staff ($\beta = 0.17$, $P = 0.01$), which was in line with our hypotheses. Note, however, that there was also an unexpected effect of self-efficacy on higher hostile staff behaviour ($\beta = 0.16$, $P = 0.02$).

Domain 3: the influence of staff psychological resources on staff interpersonal behaviour

In Table 3, the most important predictor of the two general psychological resources is that of self-reflection and insight of staff members. Higher self-reflection of staff predicted lower assertive control ($\beta = -0.11$, $P = 0.04$) and much lower hostile behaviour ($\beta = -0.17$, $P = 0.001$), which was in line with our hypotheses, whereas the hypothesis that it also would predict higher friendly behaviour was not confirmed. Insight in one's own thoughts, feelings and mind predicted lower assertive control ($\beta = -0.12$, $P = 0.03$) and lower support-seeking behaviour ($\beta = -0.12$, $P = 0.04$), as expected.

Three of the five hypothesised associations between coping styles and interpersonal behaviour were confirmed, being that an avoidance-focused coping style strongly predicts both higher friendly behaviour ($\beta = 0.13$, $P = 0.002$) and higher support-seeking behaviour ($\beta = 0.11$, $P = 0.05$). Also, an emotion-focused coping style leads to higher support-seeking behaviour ($\beta = 0.15$, $P = 0.01$). The expected association between task-focused coping style and higher assertive control and between emotion-focused coping style and higher hostile behaviour was not found.

Domain 4: the influence of staff context on staff interpersonal behaviour

In studying the influence of a staff context factor, being the climate of the team in which staff members work together, the expected influence of a better team climate on higher friendly behaviour could not be confirmed. Instead, a better team climate strongly predicted higher support-seeking behaviour ($\beta = 0.16$, $P = 0.003$).

Examining the main results on staff interpersonal behaviour towards clients with ID and CB, all independent variables together significantly explained 23% of assertive control staff behaviour, 22% of hostile staff behaviour, 56% of friendly staff behaviour and 24% of support-seeking staff behaviour. Overall, two-thirds of the hypotheses (16 of 24) were confirmed in this study.

Discussion

In order to contribute to a framework for a training in staff interacting with ID clients with CB, the aim of the present large-scale cross-sectional study was to test the effect of several key determinants in the domains of client behaviour, staff reactions, staff psychological resources and staff context on staff interpersonal behaviour. The main findings will be summarised in order of their importance and discussed for their training and clinical implications.

First of all, in line with one of Hastings' (2005) research questions, experiencing negative emotions had a very high impact on almost all staff interpersonal behaviours, leading to much more support-seeking, much more assertive control and more hostile behaviour. This supports the need for incorporating emotion-regulation techniques in both training and supervision of support staff (Gross, 1998; Tierney, Quinlan, & Hastings, 2007; Van Oorsouw, Embregts, Bosman, & Jahoda, 2014). The strong influence of positive emotions on friendly interpersonal behaviour is particularly supported by positive psychology and the broaden-and-build theory (Fredrickson, 2001). In order to create more friendly relationships between staff and clients with CB, it is therefore useful to train staff in the effective approach of expressing at least three times as many positive than negative emotions (Fredrickson, 2013).

Second, friendly and warm interpersonal behaviour of clients with CB was very strongly associated with friendly interpersonal behaviour of support staff, which is in accordance with the principle of symmetry from interpersonal models (Benjamin, 1996;; Leary, 1957). Also, higher dominance of clients predicted

higher assertive control of staff. Because circular bidirectionality is at the very heart of these models, support staff should be taught that even clients with CB react in a friendly way when treated with friendliness or professional loving care (Embregts, Hermsen, & Taminiau, 2015). Also, staff could be trained to give a therapeutic complementary interpersonal reaction, for instance, in acting less dominant which stimulates the client to react with less dominance too (Benjamin, 2003).

Third, self-efficacy of staff had a very positive impact on friendly behaviour but also moderately on assertive control and on hostile behaviour. As self-efficacy is in essence feeling competent and knowing one's strengths, which is a core element of self-determination theory and positive psychology (Ryan & Deci, 2000; Seligman, 2011), staff can be supported in the search for their strengths by using instruments from these theories, like VIA Signature Strengths (Peterson & Seligman, 2004) or Realise2 (Centre for Applied Positive Psychology, 2010).

Fourth, this study showed that the most influential psychological resource of staff is their self-reflection and self-insight, in lowering their assertive control behaviour and in reducing hostile and support-seeking behaviour. However, a very high amount of self-reflection can take the form of rumination and dysfunctional self-absorption (Grant et al., 2002). Training staff to create insight in their emotional intelligence and mindfulness-based workshops have been proven to lead to positive effects on staff coping styles and emotions (Zijlmans, Embregts, Gerits, Bosman, & Derksen, 2015) and on staff behaviour, respectively (Singh et al., 2009).

Fifth, staff avoidance-focused coping style had a strongly significant positive impact on friendly behaviour, possibly because staff who seek distraction or company of others are using an externalising-extravert stress-reducing style (Beutler, Harwood, Kimpara, Verdirame, & Blau, 2011) and are therefore being able to behave more friendly towards a client with CB. But avoidance-focused coping and emotion-focused coping – using anxious, angry and fantasy strategies – also predicted more support-seeking behaviour. This is in line with research proving that both coping strategies induced more emotional exhaustion in staff (Devereux, Hastings, & Noone, 2009; Mitchell & Hastings, 2001), leading to seeking support from the client with CB. In training and

coaching, staff should therefore be stimulated to explore how avoidance-focused coping could be especially helpful for them in behaving friendly towards clients with CB.

Sixth, a better team climate unexpectedly brought about much more support-seeking behaviour towards a client with CB, which, in a further analysis, correlated mostly with sub-factors of team interaction and searching for innovation. It can therefore be hypothesised that it is actually the higher amount of support-seeking behaviour that leads to more team interaction. Consequently, it is important to create a positive team vision rather than just enhancing team interaction, because team vision proved to be correlated with higher friendly behaviour.

Seventh, in this study, no evidence was found for a direct effect of a personal controllability attribution on interpersonal behaviour. This finding contributes to the discussion on Weiner's attribution theory (Grey, Hastings, & McClean, 2007; Weiner, 1995; Willner & Smith, 2007; Zijlmans et al., 2012), which states that internal or personal controllability has an effect on emotions, leading to less helping behaviour. As a supplementary view on this theory, the external controllability attribution had a significant and unique positive effect on friendly behaviour, besides that of positive emotions. Therefore, in promoting friendly behaviour during training and in clinical practice, it might be more important to focus on increasing attributions of external controllability than on decreasing attributions of personal controllability.

Eighth, some static characteristics of clients also had a substantial impact on staff interpersonal behaviour. Staff reported less friendly and more hostile interpersonal behaviour towards a client with mild ID and more friendly interpersonal behaviour and lower assertive control behaviour towards a client with high internalising CB. The reasons and the adequacy for these findings should therefore be addressed in training and clinical practice.

Ninth and last, replicating the findings of Willems et al. (2010), female care staff reported much less support-seeking behaviour than male care staff, possibly because female staff scored higher on interpersonal emotional intelligence, which is comparable with giving support, whereas male staff scored higher on intrapersonal emotional intelligence, defending their rights and focusing on self-esteem, therefore seeking support from the client (Gerits,

Derksen, & Verbruggen, 2004). Consequently, male staff should be coached to increase insight on the influence of their intrapersonal intelligence on their behaviour, because insight had a lowering effect on support-seeking behaviour.

As a first limitation to this study, all data were gathered using self-report questionnaires instead of objective observations, and therefore, it is impossible to state the effects of these determinants on actual staff behaviour towards clients. As some proof of concurrent validity of these self-reports, the first author conducted a workshop session for all 44 participating teams, their team manager and psychologist, and the teams highly recognised their results in daily practice. Second, in this study, we specifically included teams with serious concerns about their working relationship with one client. Therefore, the results and the subsequent suggestions for training and clinical practice should not be generalised to all clients with CB.

In earlier studies on determinants of staff interpersonal behaviour, percentages-explained variance were 18% on average for the four staff interpersonal behaviours (Willems et al., 2010; Willems et al., 2014). While including considerably more determinants, these were only somewhat higher in this study, ranging between 22% and 24%, except for the 56% explained variance of friendly staff behaviour. A partial explanation for this could be that hostile behaviour of staff, compared with friendly behaviour of staff, has a lower reliability (Cronbach's α of 0.63; Table 2) and is therefore more variable across staff members. This may have reduced the effectiveness of the multilevel models to find all the predictors we expected to find. Regarding staff support-seeking behaviour, there was not only a somewhat lower reliability, but also a skewness with a mean relatively close to its minimum. This suggests a restricted range of support-seeking behaviour that can reduce associations in multilevel modelling. Instead of even more elaborate cross-sectional studies on interpersonal behaviour, two remarkable topics, which emerged from clinical practice and the team workshops, could offer new directions for research. First, there turned out to be quite some differences in the profile and consistency between teams regarding the impact of their reactions, resources and team climate on their interpersonal behaviour, which is in line with the studies of Knotter and colleagues (2013,

2015) on the influence of team-level variables. Second, the discussions in the workshops illustrated the theory that an individual relationship between a staff member and a client with CB must not be seen as a fixed entity from a linear perspective but rather as a dynamic system from a reciprocal perspective (Hinde, 1995; Jahoda et al., 2009; Molenaar, 2004). This necessitates the use of other forms of analysis, suitable for detecting reciprocal interaction patterns, as in time series analyses. Both team consistency as well as interaction dynamics in staff–client dyads constitute interesting subjects for future research, which, as suggested by Grey and colleagues (2007), is needed to customise training for a team as a whole and for coaching on the job of an individual staff member.

The findings in this study can also be directly applied in clinical practice of behaviour intervention, by choosing the most significant determinants for the specific interpersonal staff behaviour towards an individual client with CB one wants to change. In reducing staff assertive control behaviour in dealing with CB, supervising or coaching can best start with lowering staff negative emotions through self-reflection and self-insight and by supporting staff not to react with the same control behaviour as the client shows. When higher assertive control behaviour is needed, it can be helpful to increase staff self-efficacy by identifying and reinforcing their strengths. In order to reduce hostility in staff, it is rather important to support high levels of self-reflection on their negative emotions, for instance, through using emotion-regulation techniques. Staff can also be encouraged to discuss one of the findings in this study, to what extent the internalising CB and mild ID level of their client makes them react in a more hostile manner. In cases where more friendly staff behaviour is needed, a coach can concentrate best on the power of symmetry in which friendly staff behaviour leads to friendly client behaviour. Expressing positive emotions, enhancing one's feeling of self-efficacy and using an avoidance-focused coping style through looking for distraction can all be helpful in increasing friendliness in staff towards CB clients. Because it is often considered inadequate for staff to behave in a support-seeking way (that is, needing encouragement from a client with CB), it is advisable to support staff to create more self-insight regarding their negative emotions and how their emotion-focused and avoidance-focused coping styles tend to maintain their level of support-seeking behaviour.

In this study, a framework was tested, based on Hastings (2005) and Sameroff (2010), which consisted of a large number of determinants of staff interpersonal behaviour. Several significant and unique effects were found, particularly regarding staff friendly behaviour. In training staff interactions with clients with ID who show CB, the emphasis should not only be on the bidirectional dynamics of control and affiliation between staff and clients but also – in order of importance – on the impact of staff emotions, self-efficacy, self-reflection and insight, coping style, team climate and attributions on staff interpersonal behaviour.

Acknowledgements

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