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Link to publication in Tilburg University Research Portal

Volume 33, issue 1, January/February 2012   ISSN 0891-4222

ELSEVIER

Research
in
Developmental
Disabilities

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Measuring staff behavior towards clients with ID and challenging behavior: Further psychometric evaluation of the Staff-Client Interactive Behavior Inventory (SCIBI)

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ARTICLE INFO

ABSTRACT

Recently, the Staff-Client Interactive Behavior Inventory (SCIBI) was developed, measuring both interpersonal and intrapersonal staff behavior in response to challenging behavior in clients with ID. The aim of the two studies presented here was first to confirm the factor structure and internal consistency of the SCIBI and second to demonstrate its convergent validity. In the first study, a total of 265 support staff members, employed in residential and community services, completed the SCIBI for 62 clients with ID and challenging behavior. In the second study, 158 staff members completed the SCIBI for 158 clients, as well as the SASB-Intrex, the NIAS and the Bar-On Emotional Quotient Inventory (EQI). Replication of a confirmatory factor analysis resulted in a consistent seven-factor solution of the SCIBI with high levels of internal consistency. Also, mostly good convergent validity with the SASB-Intrex and sufficient to good convergent validity with the NIAS and EQI were found, except for the self-reflective intrapersonal staff behavior scale. By replicating and extending earlier results on the SCIBI, it proves to be a reliable and sufficient valid measure of interpersonal and intrapersonal behavior of staff working with people with intellectual disabilities.

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1. Introduction

People with intellectual disabilities (ID) are at higher risk for developing behavior and mental health problems compared to people without ID (Deb, Matthews, Holt, & Bouras, 2001). Unfortunately, these challenging behavior problems are not only instigated by medical, psychological and psychiatric client conditions, but they are also known to be strengthened and maintained by behavior of support staff (Hastings & Remington, 1994). At the same time, staff members are the key agents in behavioral interventions for people with ID, including reducing challenging behavior (Felce, Lowe, Beecham, & Hallam, 2000). Most research with respect to staff interventions was based on the principles of applied behavioral analysis (Emerson, 2001) and focused on certain types of staff behavior, like helping behavior (Willner & Smith, 2008). More recently, research is also

focusing on the influence of staff psychological or intrapersonal factors – such as beliefs, attributions and emotional reactions – on staff behavioral interventions in general (Hastings, 2005; Oorsouw, Embregts, Bosman, & Jahoda, submitted; Rose, 2011; Wanless & Jahoda, 2002).

Motivated by these studies with respect to staff behavior, Willems, Embregts, Stams, and Moonen (2010) focused on both interpersonal and intrapersonal staff behavior, based on a large research tradition on interpersonal models (Benjamin, 1996; 2003; Leary, 1957; Schaeffer, 1965) instead of focusing only on helping behavior, for which inconsistent results have been reported (Zijlmans, Embregts, Bosman, & Willems, 2012). Willems and colleagues constructed the Staff-Client Interactive Behavior Inventory (SCIBI) as an instrument to measure four interpersonal behavior factors (assertive control, hostile, friendly, and support-seeking behavior) and three intrapersonal factors (proactive thinking, self-reflection, and critical expressed emotion). They stated that the SCIBI might be used for assessment purposes, by identifying interpersonal staff behaviors which are related to the occurrence of challenging behavior of an individual client. One can also use this instrument for therapeutic purposes, by focusing on the specific interpersonal staff behaviors that work best with an individual client. Currently, the SCIBI has a central place in staff interaction feedback sessions and a staff interaction training program, implementing some powerful principles of change from interpersonal and systems-oriented therapy, e.g. symmetry, complementarity and antithesis. The SCIBI is predominantly based on several interpersonal models of personality (Benjamin, 1996; Leary, 1957; Wiggins, Trapnell, & Phillips, 1988), with two robust orthogonal dimensions, namely, a control dimension (i.e. dominance-submission) and an affiliation dimension (i.e. love-hate). Willems et al. found almost equivalent factors with assertive control and support-seeking interpersonal behavior for the control dimension and friendly and hostile interpersonal behavior for the affiliation dimension.

In line with Hastings' findings (2005) that staff emotional reactions are related to challenging behavior, Willems et al. (2010) included the factor expressed emotions as one of the intrapersonal factors of staff behavior. Noone and Hastings (2009) have demonstrated in their research on emotional acceptance and mindfulness that not only the emotional reactions themselves prove to be important, but also how staff is dealing with such emotions appears to be essential. Jackson, Firtko, and Edenborough (2007) showed that this kind of emotional insight and being more reflective was important for enhancing personal resilience, which motivated Willems et al. to include (emotional) self-reflection as a second intrapersonal factor. Finally, Mitchell and Hastings (2001) found that staff often use adaptive coping strategies, such as planning and active coping when confronted with challenging behavior. Therefore, Willems et al. considered proactive thinking to be a third important intrapersonal characteristic of staff who have to deal with challenging behavior in clients with ID. In their study, they found support for excellent construct validity of the SCIBI and good internal consistency as a measure of reliability (ranging from 0.68 to 0.89). Willems et al. recommend further validation studies on the SCIBI by paying attention to convergent, discriminant, and predictive validity. This is in line with several methodological criteria that can be used in order to evaluate the psychometric properties of a self-report instrument, including reliability, confirmatory factor analysis, and several forms of construct validity (Robinson, Shaver, & Wrightsman, 1991).

Therefore, the goal of the first study was to confirm the underlying factor structure of the SCIBI and to evaluate its internal consistency for staff working with individuals with ID and challenging behavior living in a residential or community facility. In the second study, the aim was to demonstrate further validity, by determining convergent validity of the SCIBI, comparing the SCIBI with existing instruments that measure interpersonal and intrapersonal behavior in general.

2. Method

2.1. Study 1

2.1.1. Participants

In the first study, carried out in the Netherlands in 2008–2010, a total of 265 direct care staff members participated, employed in ten facilities for individuals with IDs. Most of the 265 staff members were female (Table 1). In addition to high school, 67% of the staff had a three-year professional training in the domain of nursing or social work, which is standard in the Netherlands for direct support staff; 28% had a college-degree in nursing, teaching or social science.

2.1.2. Procedure

Data on most of the direct care staff ($n = 185$) were collected from staff working with clients with challenging behavior for whom the first author was consulted as a member of the Multi-Disciplinary Centre for Dual Disabilities, a specialized interdisciplinary team in the south of the Netherlands. Staff as well as their associated psychologists and physicians consult this team in case there are serious concerns about the diagnosis and treatment of clients with severe behavior and psychiatric problems. The remaining 80 participants were staff members who completed the SCIBI as part of an effect study on a training program for staff working with mild ID clients and behavior or psychiatric problems, supervised by the second author. In this first study, the Staff-Client Interactive Behavior Inventory (SCIBI, a translation of a Dutch instrument) for each particular client was completed by different numbers of staff members, ranging from 1 to 12. Staff data on the SCIBI were analyzed with respect to 62 clients ranging from mild to severe ID and severe behavior or psychiatric problems, of which about two-thirds were diagnosed with a mild ID and one-third with lower ID levels. Almost one-third of the clients were female.

Table 1
Descriptive characteristics of support staff and clients.

	Study 1	Study 2
Support staff	n = 265	n = 158
Female (%)	77.7 (n = 206)	78.5 (n = 124)
Age (years)		
M	34.6	35.6
SD	10.6	9.9
Training level (%)		
High school	5 (n = 13)	5.7 (n = 9)
Professional training	66.8 (n = 177)	51.3 (n = 81)
College degree	28.3 (n = 75)	43 (n = 68)
Type of job (%)		
Direct care staff	100 (n = 265)	81 (n = 128)
Occupational therapy staff		19 (n = 30)
Job experience (years)		
M	9.9	12.6
SD	8.7	9.8
Range	0.2–42	1–41
Clients	n = 62	n = 158
Female (%)	29 (n = 18)	45.6 (n = 72)
Age (years)		
M	30.8	33.5
SD	15.8	14.6
Range	8–64	3–72
ID level (%)		(2 missing)
Mild	67.7 (n = 42)	41.7 (n = 65)
Moderate	17.7 (n = 11)	31.4 (n = 49)
Severe/profound	14.5 (n = 9)	26.9 (n = 42)

2.1.3. Instrument

In this study, staff members were asked to complete the Staff-Client Interactive Behavior Inventory (SCIBI), which is a 30 items self-report questionnaire using a five-point Likert Scale, ranging from completely inapplicable (1) to completely applicable (5). The development and construct validity of this instrument is described in Willems et al. (2010). Staff behavior towards an individual client addressed by the SCIBI includes randomly distributed questions on four interpersonal staff behaviors: (a) assertive control (n = 7), (b) hostile interpersonal behavior (n = 4), (c) friendly interpersonal behavior (n = 5), and (d) support-seeking interpersonal behavior (n = 3), as well as the following intrapersonal staff behaviors: (e) proactive thinking, (n = 3), (f) self-reflection (n = 3) and (g) critical expressed emotion (n = 5). Cronbach's alpha values of the SCIBI scales in that study were satisfactory, ranging from 0.68 (support-seeking) to 0.89 (proactive thinking). Also, all SCIBI-items loaded highly (over 0.50) and exclusively on their corresponding factors (Table 2).

2.1.4. Statistical analysis

In Study 1, a confirmatory factor analysis was employed on the SCIBI, using Mplus version 6.1 (Muthén & Muthén, 1998–2010). Fit-indices (CFI, TLI, and RMSEA) and the model Chi-square were used to evaluate model fit (Kline, 2005). The following fit index cut-off values are indicative of good model fit: CFI > .95, TLI > .95, and RMSEA < .05, whereas a non-significant Chi-Square indicates exact model fit (Hu & Bentler, 1999; Kline, 2005). Conventional goodness of fit criteria in confirmatory factor analysis, however, may be too restrictive (Marsh, Hau, & Wen, 2004). The cause of this is that in CFA cross loadings are constrained to zero whereas in EFA small cross loadings are allowed and estimated. According to Marsh et al. it is almost impossible to get acceptable fit (e.g. CFI > .90, RMSEA < .05). Because the items of Study 1 can be very skew and have a restricted range (1–5), the measurement level of the scores on the items are more ordered categorical (ordinal) than interval. To estimate the parameters of the factor model we used the Weighted Least Squares estimator with Mean and Variance adjusted Chi-square statistic (WLSMV), an estimator specially developed for ordered categorical variables (Muthén & Muthén, 1998–2010).

Reliability for the SCIBI in Study 1 was determined by calculating omega's. Within the framework of structural equation modeling (SEM) McDonald (1999) proposed a reliability index ω based on true score variances and error variances of the k indicators of a latent variable. This measure is also known as Jöreskog rho (Jöreskog, 1971). The index is not only suited for latent variables based on indicators of interval or ratio measurement level but also for binary or ordered categorical indicators (Bentler, 2009). Schweizer (2011) proposes to use this measure within SEM.

2.2. Study 2

2.2.1. Participants

In the second study, also carried out in the Netherlands in 2010, a total of 158 staff members participated, employed in nine facilities for individuals with IDs. Most of the 158 staff members were female and in addition to high school, there was a

Table 2
All 30 SCIBI-items, omega's, and factor loadings.

		Study 1	2010-study[a]
		Factor loadings	Factor loadings
Factor 1	**Assertive control interpersonal behavior**	Omega ω = .85	Cronbach's α = .84
Item no.			
1	I handle my rules in a strict manner	.76	.65
9	I go my own way despite critique from this client	.53	.53
11	I impose strict demands upon this client	.71	.61
13	I impose my will irrespective of what he may think	.69	.59
20	I act correctively towards this client	.75	.80
22	I act prohibitively towards him	.73	.76
25	I take the lead when I am with this client	.50	.54
Factor 2	**Hostile interpersonal behavior**	Omega ω = .75	Cronbach's α = .72
Item no.			
8	I protest with this client when I do not agree with him	.56	.51
14	I state my opinion directly to him	.47	.54
23	I let him see my anger	.82	.74
26	I grumble at this client	.75	.78
Factor 3	**Friendly interpersonal behavior**	Omega ω = .91	Cronbach's α = .82
Item no.			
2	I value this client	.70	.57
4	I like to communicate with him	.80	.70
7	I like doing something with this client	.87	.79
17	I can work well with this client	.83	.66
26	I often feel nice with this client	.89	.82
Factor 4	**Support-seeking interpersonal behavior**	Omega ω = .78	Cronbach's α = .68
Item no.			
10	I can handle everything better when this client supports me	.77	.77
15	I need encouragement from him	.70	.57
19	I like to be backed up by him	.76	.63
Factor 5	**Proactive thinking (intrapersonal behavior)**	Omega ω = .89	Cronbach's α = .89
Item no.			
21	In working with this client, I think about WHAT I am going to do.	.78	.77
27	In working with this client, I think about HOW I am going to do things	.96	.91
30	In working with this client, I think about WHY I am going to do things in such a manner	.83	.87
Factor 6	**Self-reflection (intrapersonal behavior)**	Omega ω = .64	Cronbach's α = .70
Item no.			
3	In working with this client, I think about what I myself want to attain	.46	.60
24	In working with this client, I think about what I would like to receive in return from him	.84	.52
29	In working with this client, I think about how I feel	.52	.79
Factor 7	**Critical Expressed Emotion (intrapersonal behavior)**	Omega ω = .76	Cronbach's α = .75
Item no.			
5	In working with this client, I have the tendency to deliver a long "sermon"	.63	.61
6	In working with this client, I have the tendency to work hard in order not to have to think about anything	.67	.69
12	In working with this client, I have the tendency to sometimes reject a reasonable proposal	.61	.51
16	In working with this client, I have the tendency to act directly without knowing where I really want to go	.55	.71
18	In working with this client, I have the tendency to approach him cynically	.64	.58

[a] From Willems et al. (2010), p. 44. Copyright 2009 Wiley-Blackwell Publishing Company.

rather high percentage (43%) with a college-degree in nursing, teaching, or social science (Table 1). Most of the participants were employed as direct care staff, but also 19% as occupational therapy staff.

2.2.2. Procedure

Participants for this study were recruited through a quota sample in nine facilities representative for staff in the Netherlands working with ID clients with challenging behavior, regarding staff gender, age, training level, type of job, and years of experience. Of the 235 questionnaires sent to these nine facilities, 165 questionnaires were returned, resulting in a response rate of 70% (range between facilities 38% and 100%). To make sure that the data were independent, all staff completed the *SCIBI* for only one client, resulting in data on 165 clients. Data on seven staff members were excluded because the protocol of one of the instruments recommends filtering the data for inconsistency and positive or negative impression

scores, resulting in 158 valid questionnaires. Furthermore, we succeeded almost perfectly in the purpose to include similar numbers of male and female clients (preferred quota 50%–50%), with a full range of ID-level (preferred quota 50% diagnosed with mild ID, 25% with moderate ID and 25% with severe/profound ID). To be able to generalize the results regarding a full range of challenging behavior, we included not only data on clients with predominantly externalizing challenging behavior (74%), but also on clients with predominantly internalizing challenging behavior (26%). Challenging behavior was defined as behavior of such intensity, frequency, or duration that the physical safety of the person or others is placed in serious jeopardy or behavior which is likely to seriously limit of deny access to the use of ordinary community facilities (Emerson, 2001).

2.2.3. Instruments

In the second study, in addition to the SCIBI, staff also completed three other instruments: the Structural Analysis of Social Behavior Intrex (*SASB-Intrex*), the Nederlandse Interpersoonlijke Adjectieven Schalen (*NIAS*) and the Bar-On Emotional Quotient Inventory (*EQI*). First, the *SASB-Intrex* (medium form) by Benjamin (2000), which we translated in Dutch, comparing it with a preliminary translation in Flemish (M. Desmet and R. Inslegers, personal communication, January 7th, 2010). Because we were only interested in how staff describe themselves towards an individual client, we only used the 32 interpersonal items of the Intrex (form B He/Present) on how a staff member describes him- or herself towards a significant other person (i.e., the client), measuring sixteen interpersonal factors on the affiliation and the control dimensions. Also, different from the original instruction, we asked staff to rate themselves at their average daily behavior towards the client instead of how they behave at their best or their worst. The *SASB-Intrex* medium form has demonstrated high split half reliability ($\alpha = 0.82$), high test–retest reliability ($r = 0.84$) and good content, construct, predictive, and concurrent validity with measures on personality traits, interpersonal circle and prediction of therapy outcome (Benjamin, Rothweiler, & Critchfield, 2006). As a preliminary test of the structural integrity of our Dutch translation of the *SASB-Intrex* in this sample of care staff, we conducted a confirmatory factor analysis (Mplus), presented in the results.

In the second study staff also completed the Nederlandse Interpersoonlijke Adjectieven Schalen (*NIAS*-short form, Rouckhout & Schacht, 2000, 2008), which is a Dutch alternative for the Interpersonal Adjectives Scales-revised (*IAS-R*, Wiggins et al., 1988). The *NIAS* measures eight factors of the interpersonal circumplex, consisting of two orthogonal dimensions dominance-submissiveness (control-dimension) and love-hate (affiliation dimension). It has displayed good internal consistency (alpha's ranging from 0.77 to 0.92), and good convergent construct validity with empathy and personality traits as extraversion and agreeableness (Rouckhout & Schacht, 2000, 2008).

Third, the Dutch version of the Bar-On Emotional Quotient Inventory (Bar-On, 1997), developed by Derksen, Jeuken, and Klein Herenbrink (1998), was administered to measure emotional intelligence. This 133-item inventory consists of 15 factors on the domains of Intrapersonal Abilities, Interpersonal Skills, Adaptability, Stress-Management, and General Mood. Its internal consistency is good (ranging from 0.69 to 0.86) and the average test–retest reliability coefficients after 1 and 4 months have been found to be 0.85 and 0.75, respectively. The construct validity of the *EQI* scales has been examined in 16 countries, and it taps a broad range of related emotional constructs (Derksen et al., 1998).

2.2.4. Statistical analysis

Reliability for the Dutch translation of the *SASB-Intrex* in Study 2 was determined by calculating omega's, conducting the same analysis as reported on in Study 1.

After a preliminary analysis on the normal distribution of the data, further analyses of Study 2 were focused on validity, by determining convergent validity of the *SCIBI* with the *SASB-Intrex*, because the *SCIBI* and the *SASB-Intrex* both measure interpersonal behavior with respect to an individual. Also, the convergent validity of the *SCIBI* with the *NIAS* and *EQI* is determined, because respectively, these instruments measure interpersonal behavior in general and emotional intelligence in general. First, the 165 *EQI* protocols were validated by filtering, as suggested by Gerits, Derksen, and Verbruggen (2004), for consistency (Inconsistency Index > 12), positive impression (Positive Impression Score > 130), and negative impression (Negative Impression Score > 130). The final sample consisted of 158 valid *EQI* protocols (95.8%). The *SCIBI*-variables in this second study were ordinal and not normally distributed, so for $n = 158$ non-parametric Spearman's correlation analyses were performed and these correlations were Bonferroni corrected because multiple correlations were calculated (Curtin & Schulz, 1998).

3. Results

The results are reported in five sections, in which the first section is on Study 1 and the remaining four sections are on Study 2.

3.1. Study 1: confirmation of factor structure of the SCIBI and internal consistency reliability

In order to establish construct validity, a confirmatory factor analysis was performed on all items of the *SCIBI* in Study 1 with $n = 265$ staff members, using Mplus. The seven-factor solution did not show an exact fit to the data: $\chi^2 (384) = 607.52$, $p = 0.001$, but the fit-indices were good: RMSEA = 0.047, CFI = 0.92 and TLI = 0.90. The results are presented in Table 2, which shows that reliability coefficients (omega's) were mostly sufficient to (very) good and item analyses revealed that all items

contributed highly to the internal consistency. Most reliability indices of this study even proved to be higher than Cronbach's alpha's and factor loadings from an earlier study on $n = 292$ staff members (Willems et al., 2010) (Table 2).

3.2. Study 2: preliminary analysis

In Study 2 with $n = 158$, most of the seven *SCIBI*-factors were significantly non-normal (Kolmogorov-Smirnov test), except Hostility $D(158) = 0.07$, $p > .05$, therefore only non-parametric Spearman's correlation analyses were performed.

3.3. Study 2: descriptives and reliability of the Dutch translation of the SASB-Intrex

Because this is the first time the *SASB-Intrex* has been translated for a Dutch setting, Table 3 presents the means (minimum of 0 and maximum of 100) and standard deviations for all 16 scales, based on the data from 158 support staff in Study 2. These means of staff average daily behavior are compared with an American sample ($n = 98$) of psychotherapy patients rating their interpersonal behavior towards a significant other at their best as well as at their worst, because no other means were available (Benjamin, 2000). Staff rated their interpersonal behavior as moderately low as American patients at their worst on Freeing-Forgetting, Affirming-Understanding, Loving-Approaching, Disclosing-Expressing, Joyfully connecting, and Trusting-Relying behavior. Means which were comparable with American best ratings were found for Belittling-Blaming, Attacking-Rejecting, Ignoring-Neglecting, Sulking-Scurrying, Protesting-Recoiling, and Walling-off-Distancing behavior and they were very low, as can be expected in support staff. Most remarkable were the high ratings for Watching-Controlling and Nurturing-Protecting behavior.

This translation was used for a very different group respondents, being support staff professionally working with clients with ID and challenging behavior, rather than psychotherapy patients rating their behavior towards a significant other, as in the original SASB-Intrex. As a preliminary test of the structural integrity of this translation in this sample of care staff, the reliability indices are presented in Table 3, with omega's for all 16 scales, which resulted in only two very low or negative omega's on Affirming-Understanding and Attacking-Rejecting behavior. Therefore we consider the reliability of 14 of these 16 scales as sufficient and we decided to use the data concerning these 14 scales.

3.4. Study 2: convergent validity of the interpersonal factors of the SCIBI

The *SASB-Intrex* and the *NIAS* are exclusively interpersonal instruments, the first focusing on interpersonal behavior towards an individual and the second on interpersonal behavior in general. Therefore, only relationships between the four interpersonal *SCIBI*-factors and respectively the 14 *SASB-Intrex* and eight *NIAS* factors are presented in Table 4, by calculating Spearman's rho with Bonferroni-correction. To determine convergent validity for the four interpersonal *SCIBI*-factors based on these 14 interpersonal factors of the *SASB-Intrex*, we expected to find correlations between Assertive control and the Intrex-factors Watching-Controlling, Asserting-Separating and Belittling-Blaming behavior (positively) and with Deferring and Freeing behavior (negatively). Only on Control and Blame the correlations proved to be significant and high (Bonferroni corrected). Regarding Hostile, we expected correlations with Watching-Controlling, Belittling-Blaming, Ignoring-Neglecting and Disclosing-Expressing behavior (positively) and with Loving-Approaching and Joyfully connecting behavior (negatively). Four of these six correlations proved to be significant. With respect to Friendly, positive correlations were expected with Loving-Approaching, Nurturing-Protecting, Disclosing-Expressing, Joyfully connecting and Trusting-Relying

Table 3
All 16 SASB-Intrex-subscales, means, means of American sample best/worst, and omega's of Dutch SASB-Intrex-translation.

		Sample, $n = 158$ means (SD)	American sample, $n = 98$ best means (SD)	American sample, $n = 98$ worst means (SD)	Omega's ω, Dutch translation
Scale 1	Freeing-Forgetting	42.03 (22.00)	72.94 (23.85)	58.47 (26.8)	.53
Scale 2	Affirming-Understanding	64.03 (19.19)	84.08 (12.15)	54.11 (23.47)	.25
Scale 3	Loving-Approaching	57.18 (27.23)	82.05 (18.2)	49.42 (27.37)	.80
Scale 4	Nurturing-Protecting	75.41 (18.10)	77.98 (18.07)	49.01 (26.63)	.69
Scale 5	Watching-Controlling	65.28 (21.68)	20.91 (20.67)	25.78 (24.04)	.72
Scale 6	Belittling-Blaming	11.20 (15.72)	8.82 (12.95)	22.38 (22.57)	.51
Scale 7	Attacking-Rejecting	2.18 (5.90)	3.77 (8.91)	12.29 (21.03)	-.84
Scale 8	Ignoring-Neglecting	9.18 (15.08)	8.31 (16.03)	24.25 (27.36)	.48
Scale 9	Asserting-Separating	51.30 (26.61)	65.75 (22.29)	62.21 (23.84)	.73
Scale 10	Disclosing-Expressing	51.39 (25.22)	81.1 (17.02)	54.1 (27.43)	.70
Scale 11	Joyfully connecting	57.75 (23.51)	85.86 (17.57)	51.25 (30.63)	.85
Scale 12	Trusting-Relying	53.01 (21.27)	76.68 (18.63)	49.53 (26.64)	.65
Scale 13	Deferring-Submitting	26.74 (18.08)	25.56 (24.13)	25.26 (23.68)	.54
Scale 14	Sulking-Scurrying	6.65 (11.36)	19.84 (20.91)	28.54 (21.54)	.71
Scale 15	Protesting-Recoiling	4.40 (10.82)	7.55 (14.87)	22.85 (28.17)	.75
Scale 16	Walling-off-Distancing	18.39 (16.03)	17.44 (19.22)	43.62 (25.99)	.50

Note. Factors and items are all from "*SASB Intrex Users Model*." by L.S. Benjamin (2000). Copyright 2000 by University of Utah. Translated with permission of the author.

Table 4
Correlations between SCIBI-interpersonal factors and SASB-Intrex and NIAS.

SCIBI-interpersonal	Assertive control	Hostile	Friendly	Support-seeking
SASB-Intrex				
Freeing-Forgetting	−.18	.06	−.00	.12
Loving-Approaching	.05	.05	.32**	.12
Nurturing-Protecting	.05	.01	.46**	.05
Watching-Controlling	.51**	.35**	.27*	.01
Belittling-Blaming	.42**	.48**	.02	.19
Ignoring-Neglecting	.21	.27*	−.25*	.20
Asserting-Separating	.19	.17	.07	.05
Disclosing-Expressing	.11	.27*	.32**	−.00
Joyfully connecting	.16	.14	.70**	.06
Trusting-Relying	.21	.20	.49**	.17
Deferring-Submitting	−.18	−.12	.07	.15
Sulking-Scurrying	.14	.15	−.26*	.36**
Protesting-Recoiling	.06	.06	−.41**	.14
Walling-off-Distancing	.02	.03	−.42**	.16
NIAS				
PA-controlling	.31**	.26*	−.03	.18
BC-competitive	.26*	.29**	−.05	.19
DE-attacking	.25*	.27*	−.23*	.23*
FG-distrusting	.11	.07	−.19	.24*
HI-submissive	−.03	−.07	.07	.08
JK-docile	−.02	−.06	.20	.02
LM-friendly	−.05	−.06	.18	−.04
NO-extravert	.18	.14	.23*	−.08

Note. For the SASB-Intrex, Bonferroni corrected Spearman's rho (two-tailed) $^*p < .004$, $^{**}p < .001$.
For the NIAS, $^*p < .006$, $^{**}p < .001$.

behavior, and negative correlations with Belittling-Blaming, Ignoring-Neglecting, Sulking-Scurrying, Protesting-Recoiling and Walling-off-Distancing behavior. Almost all correlations were significant and several were high, except for Belittling-Blaming. Also, one unexpected positive correlation with Watching-Controlling was found. For Support-seeking, we only found one of the expected positive correlations with Sulking-Scurrying and not for Trusting-Relying behavior.

Concluding, because 16 of the 23 expected correlations were found to be significant, the four interpersonal *SCIBI*-factors demonstrated sufficient to good convergent validity, mostly and highest for Assertive Control, Hostile and Friendly interpersonal behavior.

Because the *NIAS* was completed as an instrument for interpersonal behavior towards ID-clients in general, we also determined convergent validity for the four interpersonal *SCIBI*-factors based on the eight interpersonal factors of the *NIAS* (Table 4). Three of the five expected correlations between Assertive control and controlling, competitive, attacking, extravert behavior and negatively with submissive behavior proved to be significant. Regarding Hostile, all expected correlations with controlling, competitive and attacking behavior were significant, but not the negatively expected correlation with friendly behavior. With respect to Friendly, only two expected correlations with extravert and attacking behavior (negatively) were significant, although those with docile, friendly and distrusting behavior were in the right direction. For Support-seeking, a significant correlation was found as expected with distrusting behavior, but also unexpected with attacking behavior, and no correlation was found with docile and submissive behavior.

Therefore, with regard to convergent validity of the four interpersonal *SCIBI*-factors, it can be concluded that 9 of the 17 expected correlations with the *NIAS* were found to be significant, thereby demonstrating sufficient convergent validity, mostly for the Assertive Control and Hostile factors.

3.5. Study 2: convergent validity of the intrapersonal factors of the SCIBI

Because support staff completed also the *EQI* as an instrument for emotional intelligence, convergent validity can be determined for the three intrapersonal *SCIBI*-factors based on the five *EQI*-domains (Table 5). We expected correlations, calculating Spearman's rho with Bonferroni correction, between Proactive thinking and four of the *EQI*-domains, except General Mood *EQI*. Only the correlations between Interpersonal and Adaptation *EQI* proved to be significant. For Self-reflection, no expected correlations were found with Intrapersonal *EQI*. With regard to Critical Expressed Emotion, the negatively expected correlations with Intrapersonal *EQI*, Stress-management *EQI* and Adaptation *EQI* all proved to be significant. Therefore, it can be concluded that two of the three *SCIBI*-intrapersonal factors demonstrated sufficient convergent validity.

4. Discussion

In an earlier study, the *SCIBI* was developed and validated as a self-report instrument to assess interpersonal and intrapersonal behavior of support staff, and was considered to be useful for identifying staff behavior, which can strengthen

Table 5
Correlations between SCIBI-intrapersonal factors and EQI.

SCIBI-intrapersonal	Proactive thinking	Self-reflection	Critical expressed emotion
Intrapersonal EQI	.08	−.10	−.24*
Interpersonal EQI	.28**	.12	−.21*
Stress-management EQI	.16	−.05	−.27*
Adaptation EQI	.22*	−.05	−.28**
General mood EQI	.17	.00	−.18

Note. For the EQI, Bonferroni corrected Spearman's rho (two-tailed) $^*p < .01$, $^{**}p < .001$.

or maintain challenging behavior of ID clients (Willems et al., 2010). In line with general methodological recommendations to conduct further validation studies on new instruments, the present research investigated the psychometric properties of the *SCIBI* by replicating that earlier confirmatory factor and reliability analysis and by further evaluating its convergent validity.

In the first study, the seven factor structure of the *SCIBI* was replicated and in addition, sufficient to good internal consistency was found for the *SCIBI*, resulting in higher reliability coefficients than in the earlier study (2010). The *SCIBI* therefore proves to be a reliable instrument with good content and construct validity to measure interpersonal and intrapersonal staff behavior towards clients with ID and challenging behavior.

In the second study, convergent validity analyses were conducted, comparing the *SCIBI* with the *SASB-Intrex*, the *NIAS* and the *EQI*, as these instruments are reliable and validated measures for interpersonal behavior and emotional intelligence. Because this was the first Dutch translation of the *SASB-Intrex* with 16 factors, a reliability analysis was conducted, resulting in nine good and five sufficient reliable factors. This can be considered as an encouraging result, because the *SASB-Intrex* usually has to be revised and retested in a different language for about five times (Benjamin, personal communication, December 28th, 2011). In our study respondents were support staff professionally working with clients with ID and challenging behavior, mostly externalizing behavior. Most remarkable were their very high ratings with respect to Watching-Controlling behavior, compared to psychotherapy patients rating their behavior towards a significant other. This is in line with Huitink, Embregts, Veerman, and Verhoeven (2011), who found that staff were more focused on 'behavior regulation' and 'teaching', rather than 'empowerment' and 'client-directed care', when confronted with externalizing challenging behavior like major conduct and hyperactivity-inattention problems.

Regarding validity with the *SASB-Intrex*, convergent validity was found for most of the interpersonal *SCIBI*-factors, but this was weak for the *SCIBI* support-seeking subscale. Close inspection of the items of this factor support-seeking reveal that these items are very different from the corresponding 'submission'-factor on the control dimension in the interpersonal SASB-model, which can explain the absence of expected high correlations with *SASB-Intrex* factors Submit, Trust, and Sulk.

Furthermore, sufficient support was found for convergent validity for the four interpersonal *SCIBI* factors with the *NIAS*. Correlations were somewhat lower compared to those with the *SASB-Intrex*, possibly because the *NIAS* measures interpersonal behavior towards ID clients in general and the *SCIBI* and *SASB-Intrex* both focus on an individual client with challenging behavior. Therefore it can be concluded that the results of the second study supported sufficiently the convergent validity for the interpersonal factors of the *SCIBI*.

Also, convergent validity for two of the three intrapersonal factors of the *SCIBI* was demonstrated by significant correlations with several *EQI*-domains. Unexpectedly, the third intrapersonal SCIBI factor Self-reflection was not consistently related to Intrapersonal *EQI*. This may be due to the fact that the *SCIBI* items are all formulated on how one cognitively thinks about what one wants to attain and receive in return in a relation to a client, whereas Intrapersonal *EQI* is predominantly about emotional concepts regarding oneself, like self-regard, independence, self-actualization and emotional self-awareness (Bar-On, 1997).

In conclusion, the factor structure and good internal consistency of the *SCIBI* was replicated in this study and sufficient to good validity was found for almost all *SCIBI* factors and therefore, it can be a useful instrument within research. Nevertheless, this study on the *SCIBI* as a self-report measure was limited by the fact that no concurrent validity was determined with objective observations of interpersonal staff behavior. Also, no test–retest reliability was available and discriminant validity with measures on e.g. staff knowledge needs to be determined. Furthermore, no exact data were collected on staff and client race nor on types of challenging behavior, thereby limiting the possibility for comparing these results with research on several ethnic groups and specific types of challenging behaviour.

Recently, Hastings (2010) stressed the need to develop ways to measure dimensions of the relationships between support staff and ID clients. The *SCIBI* can be considered as such an instrument constricted to one of these relation partners, namely, support staff. Starting from the framework proposed by Hastings (2005), the *SCIBI* might be useful to measure the influences of client behavior, staff psychological resources, and organizational factors on interpersonal and intrapersonal staff behavior. Secondly, because the *SCIBI* is a self-report instrument, which investigates staff perceptions of their interpersonal and intrapersonal behavior, Rose (2011) also considers the *SCIBI* as a useful instrument to examine the mediating effects of this staff behavior on outcomes for clients. This is in line with the recommendation by Wanless and Jahoda (2002) who focused on the interpersonal cognitions to explain the dynamics of the relation between staff and client. Thirdly, the *SCIBI* may be

useful in measuring effects of staff training and coaching on the job, in building respectful relationships (Embregts, 2011), thereby complementing the research on training effects on staff beliefs, emotions and skills.

Furthermore, because the fact the *SCIBI* only takes about 5–10 min to administer, it can be useful in daily practice of advising support staff on their treatment of challenging behavior. Based on the outcomes of the *SCIBI*, teams of support staff can reflect on differences between their interpersonal behavior and decide which interpersonal behavior profile actually is related to less challenging behavior. In this way, the *SCIBI* can directly help support staff to adjust their behavior to the interpersonal challenging behavior of ID clients.

Acknowledgments

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