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Writing About Stress: The Impact of a Stress-Management Programme on Staff Accounts of Dealing with Stress

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Background Helping staff serving clients with intellectual disability and challenging behaviour to cope with stress has implications for their own well-being and for the lives of those they support.
Method This study examined staff members' views of stress and the effectiveness of a stress-management intervention. Effectiveness was assessed using written assignments regarding stress management, and changes in views presented were tested in a pre- and post-test control group design.
Results In the first phase, a content analysis was conducted across groups, which revealed that participants expressed a broad variety of views about stress and coping mechanisms, with considerable individual differences. In the second phase, a more fine-grained quantitative analysis was conducted to assess training effectiveness. Results showed an increase in the proportion of coping strategies referred to by the experimental group post-training. This positive change remained at follow-up.
Conclusions The results of the content analysis and the outcome data have implications for staff training.

Keywords: challenging behaviour, intellectual disabilities, staff, stress management, training

Introduction

Compared with other groups of professionals, staff members in mental health care appear to have one of the highest levels of work-related stress (Edwards & Burnard 2003). Frequently reported organizational sources of stress include job demands, poorly defined roles and the team climate within the organization (Rose 1993; Rose & Schelewa-Davies 1997; Rose *et al.* 2003). Stress levels of staff serving clients with intellectual disabilities and challenging behaviour appear to be particularly severe/high (Mitchell & Hastings 2001; Jenkins *et al.* 2007).

The negative impact of staff stress on their own well-being and that of their clients has been the subject of a great deal of discussion. Paradoxically, high levels of stress, linked to negative emotional reactions to challenging behaviour, may increase the risk of staff responses that help to maintain clients' challenging behaviour (Hasting & Remington 1994). Moreover, such negative emotional reactions can have a corrosive effect on staff's well-being (Olshevski *et al.* 1999; Mitchell & Hastings 2001). Therefore, it is commonly acknowledged that staff need specific and intensive training to manage their feelings and behaviour in relation to the challenging behaviour of the clients they support. Goals of professional training should not be restricted to improved behavioural knowledge and more positive attributions (Bromley & Emerson 1995). Additionally, staff might also need training in understanding and awareness of stress-related symptoms, appraisal processes and coping abilities regarding stressful events (Lazarus & Folkman 1984; Whittington & Wykes 1996; van der Hek & Plomp 1997; Olshevski *et al.* 1999).

Psychological support programmes to alleviate staff stress, based on the principles of behavioural analysis, sometimes in combination with models of positive behaviour support, have already been evaluated (Whitt ington & Burns 2005). These intervention studies usually focus on staff behavioural knowledge, staff attributions

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about causes of challenging behaviour, self-efficacy, causal beliefs and staff emotional reactions (Tierney *et al.* 2007). Tierney *et al.* (2007) added a day's training about symptoms of stress and ways of dealing with it. In line with Tierney *et al.* (2007), Hasting & Remington (1994) have proposed a form of stress inoculation training that focuses on coping strategies like self-instruction, problem solving and relaxation. Threat perception differs among individuals, as does the ability to deal with threat (Lazarus & Folkman 1984). Moreover, different individuals use different learning styles to integrate new knowledge and skills (Kolb 1976). Rose *et al.* (2003) recognized these individual differences and argued that staff training needs to provide different entry points to knowledge and coping strategies, to help alter the way different staff members view and cope with particular stressors. The variation among individuals is also reflected in the fact that work-related stress-management interventions seem to use an eclectic mix of meditation, time management, relaxation, cognitive coping strategies, biofeedback, practical exercises and individual counselling (van der Hek & Plomp 1997; Edwards & Burnard 2003).

In this study, the present authors designed and evaluated a 4-day in-service stress-management training for staff serving clients with intellectual disability and challenging behaviour. Staff who participated were familiar with programmes based on behavioural principles (see van Oorsouw *et al.* 2010). However, they had not yet participated in programmes regarding stress-related symptoms, causes, consequences and coping abilities in stressful situations. The training covered relevant theory as well as consisting of practical exercises. Our programme drew on different publications about the effectiveness of in-service training for staff (Lazarus & Folkman 1984; Tierney *et al.* 2007; van Oorsouw *et al.* 2009). The present authors did not assume that their programme would lead to changes on distal outcome variables such as emotional reactions and feelings of burnout. Such outcomes require in-service training combined with more intensive coaching on the job. From this perspective, the main goal of our in-service training was to affect changes in staff members' insight into their own stress management, thereby making them more receptive to future coaching on the job.

Two groups of participants took part in this study, an experimental group who received the stress-management intervention and a waiting list control group. The participants' views about stress were obtained using a novel written assignment, which simply involved them being asked to write about how they dealt with stress. This resulted in the study having two phases. The first phase involved a content analysis to obtain staff's own views about stress. The second phase consisted of a quantitative analysis of the content of the participants' accounts, to examine whether this changed as a consequence of taking part in the intervention.

Method

Participants

Sixty-two staff members participated in this study. All participants were working in residential homes or day care centres for clients with intellectual disability run by a service provider in the south-west of the Netherlands. None of them had participated in a comparable training programme regarding management of stress in the past. Participants in the experimental ($n = 31$) and control groups ($n = 31$) were matched in terms of (i) their particular role (e.g. regular staff versus personal tutor), (ii) work setting and (iii) the severity of intellectual disability of the individuals they were supporting. Demographic information about the entire sample, the experimental and control group is presented in Table 1.

Table 1 Demographic information of participants

	Whole sample	*Experimental group*	*Control group*
n	62	31	31
Gender			
Men	15	8	7
Women	47	23	24
Age (years)			
M	34.28	33.9	34.7
SD	10.26	9.6	11.0
Working experience (years)			
M	11.2	11.2	11.2
SD	9.3	9.2	9.6
Level of education			
Intermediate vocational	43	21	22
Univ. applied sciences	17	8	9
Univ. masters degree	2	2	0
Role			
Regular staff	23	12	11
Personal tutor	39	19	20
Working setting			
Homes	49	25	24
Day care	13	6	7

The two groups had a similar gender balance and were of similar age. It is also noteworthy that the two groups had similar levels of educational attainment.

All staff members participating in the study worked on a daily basis with clients with intellectual disability. Scores derived from WISC-RN and Kaufman Intelligence Test assessments indicated that 48% of the clients had mild-to-moderate levels of intellectual disability (IQ scores between the range of 40–70). Developmental ages derived from Vineland Adaptive Behaviour Scale scores were available for the remaining clients (52%) and indicated that these clients were functioning at severe levels of intellectual disability. Based on clinical records, daily reports and assigned financial support scales from the Dutch government, the clients' challenging behaviour was categorized as being severe. Challenging behaviour mainly consisted of physical and verbal aggressive threats and acts that were aimed at both staff members and other clients. Clients with more severe intellectual disability also presented with self-injurious behaviour. Due to the long-standing nature of these clients' difficulties, it could not be expected that their challenging behaviour would decrease in the near future. Staff members, therefore, had to learn how best to deal with it.

The policy of the service provider was to send staff members to the stress-management course; managers assigned staff members to the training. The course adopted a group format and staff were enrolled in groups as they were sent for training. As a result, staff members 1–8 constituted the first training group, staff members 9–23 constituted the second training group and staff members 24–31 constituted the third training group. Based on a number of matching criteria, the present authors selected 31 staff members from the remaining group of untrained staff members, who constituted the three non-intervention groups (8, 15 and 8 participants, respectively). Although participants were not assigned on a random basis to the experimental and control group, it is unlikely that motivation to participate affected the outcomes differentially because eventually all staff members had to be trained. The members of the control group thus received their training after the study was finished.

Measure

Self-awareness regarding personal stress management

To our knowledge, there is no standardized measure that assesses self-awareness regarding personal stress management. The present authors, therefore, developed an instrument to establish feelings, experiences and/or insights dominating the participants' thinking with respect to stress management. To avoid biasing participants' responses through a particular line of questioning, a more open-ended written assignment was developed. The assignment was introduced with a short narrative, explaining that all human beings sometimes experience events that cause feelings of stress and loss of control. After this brief introduction, participants were invited to write down in their own words how they observed, analysed and/or reacted to stress. The instruction emphasized that all responses, of whatever length and content, were allowed. An example of a completed assignment at pre- and post-test is shown in Table 2.

Training

The intervention consisted of a 4-day in-service training programme for staff members. Training days were scheduled over a period of 3 months to provide the participants some time in between sessions to reflect on the different topics covered in the programme and apply the ideas in practice. The four training days were divided into eight times three-hour sessions. The training was provided by two trainers, who both

Table 2 Example of responses on the writing assignment. Pre- versus post-test

Pre-test	*Post-test*
I become insecure and feel myself little and vulnerable. A feeling of discomfort… I breathe quietly. I increase my power by imaging myself as being self-assured. A kind of arrogance, which can lead to a stoic attitude and/or behaviour	When I lose my balance, I do feel myself little and vulnerable and alone. I have created a defence mechanism. By using aggression, I keep people at a distance when I am afraid that they will try to hurt me. This is based on experiences from the past. Nowadays, I try to stay calm and to trust on my imagined self-assurance

worked at the institute. One was a clinical therapist and the other a manager with ample coaching and training experience. Knowledge, insight and skills were taught by using a varied package of training techniques, such as lectures, modelling, role-play, verbal feedback and group discussions. Lessons about relevant theory were alternated with physical and cognitive exercises (e.g. breathing techniques, role-plays). Using this range of approaches helped to maintain the participants' engagement and concentration.

The course content is described in Table 3. Six sessions were spent on topics regarding observation of stress signals and analyses of stress triggers. The goal of the sessions was to make staff realize (i) what they feel, do and think when they are stressed and (ii) what factors might trigger their individual stress reactions. Topics that were taught and discussed in these sessions were stress physiology, thoughts and feelings, transference/countertransference and pitfalls. Four sessions were spent on practical exercises to combat stress, with regular short practice sessions interspersed throughout the rest of the programme. The aim of the sessions on intervention was to provide staff with strategies they could use to prevent stress or recover after stressful situations have occurred. In these sessions, participants were made familiar with different techniques, like heart rhythm variability coherence feedback (McCraty & Childre 2010) breathing techniques, relaxation, resolving conflicts, personal values and the effect of practical actions like doing sport, sharing and being aware of personal boundaries. Heart rhythm variability coherence feedback is a form of biofeedback training that has been pioneered in the USA. This biofeedback training aims to facilitate the learning of self-regulation skills regarding stressful situations (McCraty & Childre 2010). The last session provided an overview of what was taught in the programme and aimed to bring the different elements together as an integrated whole.

Fidelity to the training manual

One of the authors and a master student in psychology were present during all training sessions. These observations allowed us to compare the content of the training sessions with the scheduled training programme. The data showed that all of the sessions were introduced and discussed as planned, indicating good fidelity of the manual.

Design & procedure

A quasi-experimental pre-test–post-test control group design was used. Pre-tests of the experimental group were conducted before the first day of training. In the same week, the pre-tests were administered to each of the participants in the control group. Before the assessments, participants were informed about the fact that their assignments would remain anonymous. The experimental group then received their 4-day training. All training groups received identical training programmes,

Table 3 Course content

Day 1	*Day 2*	*Day 3*	*Day 4*
Morning programme			
Introduction Stress physiology	Learning to notice thoughts, feelings and sensations without judging[1]	Transference/ countertransference	Committed action, setting goals according to values[1]
Afternoon programme			
Strengths and pitfalls Lecture heart rhythm variability coherence feedback	Recognize, accept and embrace previous private events[1]	Resolve conflicts Clarify personal values[1]	Review, bring together the different elements as integrated whole
Practice during the entire day			
Breathing techniques	Heart rhythm variability coherence feedback training[2]	Heart rhythm variability coherence feedback training[2]	Heart rhythm variability coherence feedback training[2]

[1]Elements from the Acceptance and Commitment Therapy (Hayes *et al.* 2004), which is based on the Rational Frame Theory.
[2]Using the emWave Personal Stress Reliever (www.heartmathbenelux.com; McCraty & Childre 2010).

conducted by the same trainers. The control group did not receive any type of intervention. At the end of the last training day, participants from the experimental group completed the post-tests. Control group participants completed the post-test at approximately the same time as the experimental group. A 6-week follow-up assessment was only carried out with the experimental group. Questionnaires about the acceptability of training were completed at the end of each training day. The data from the three training groups were collapsed to increase the power of analysis.

Phase 1: Qualitative Analyses

Preparing data for qualitative content analysis

To prepare data for analyses, written assignments were uploaded into Atlas.ti, a software package for qualitative data analysis (Muhr 1993). A categorization system was developed to code the content and meaning of utterances that participants made when writing about their stress-management processes. The first step of the categorization process was to divide the written story into separate, meaningful utterances. This resulted in 727 different utterances in the Atlas.ti database. Next, all utterances expressing similar views were grouped together. For example, the utterances 'talking to others is my solution' and 'it helps me to talk with family and friends' were combined under the heading 'talking with others'. As a result of the categorization process, 727 utterances were grouped in 48 clearly defined headings. Then, related headings were grouped under broader categories. For example, the headings 'talking to others' and 'asking and accepting help' were combined in the subcategory labelled 'social support'. This third step in the categorization process grouped all 48 headings under 13 different subcategories. Finally, the 13 subcategories were merged into three main categories. The content of the final categorization process is described in the Results section, and short quotes from the assignments will be used to illustrate some of the types of view expressed.

Results and Conclusions

Content analysis: this will present the findings from the content analysis of the participants' accounts under the three broad categories of (i) stress signals, (ii) stress triggers and (iii) coping strategies.

Stress signals

Subcategories and related headings of main category 1 are listed in Table 4. The main category is called stress signals and concerns signs of any kind that were interpreted by participants as symptoms of stress. The main category stress signals consist of the four subcategories described below.

Physical signs

Physical signs of stress were descriptions of typical physical sensations such as pain, discomfort or other bodily changes. References to these symptoms were grouped into eight different headings: (i) breathing (*my breathing stops now and then*); (ii) heart (*my heart beats faster*); (iii) sleep (*I find it difficult to get to asleep*); (iv) sweating/getting hot; (v) physical discomfort (*my legs feel weak/I get a headache*); (vi) restlessness (*I find it difficult to sit still*); (vii) appetite (*I can't eat much*); and (viii) speech (*I talk more loudly*).

Cognitive signs

The subcategory cognitive signals contained utterances and headings referring to problems with thinking and changes in thinking style. Two headings emerged: (i) brooding (*I am worried*) and (ii) problems with concentration. Utterances regarding concentration

Table 4 Categorization of stress signals

Subcategories	*Headings*
Physical symptoms	Breathing; heart; sleep; sweating/ getting hot; physical discomfort; restlessness; appetite; speech
Cognitive signs	Brooding; problems with concentration
Emotional signs	Feeling uptight; a rush of adrenaline; a lack of energy; a sense of being out of control; unhappy; feeling restless; feeling antisocial; moody/emotional
Environmental signals	The environment responses

All utterances from the written assignments were grouped under one of the headings. Headings were then grouped under one of the subcategories. The subcategories in Table 4 belonged to the main category stress signals. Examples of accompanying utterances are described in the Results section of study one. Assignments were written in Dutch. The table shows the best fitting translations.

difficulties were more focused on problems with thinking clearly, such as *my mind wanders* or *I am confused*.

Emotional signs

Participants described eight different types of emotional experience: (i) feeling uptight (*like I am out of breath*); (ii) a rush of adrenaline; (iii) a lack of energy (*I can't be bothered to do things*); (iv) a sense of being out of control (*I need to try and stay in control*); (v) unhappy (*I don't feel at ease anymore/I've lost my sense of humour*); (vi) feeling restless (*I need to do something/I become impatient*); (vii) feeling antisocial (*I want to cut myself off from other people*); and (viii) moody/emotional. The latter subcategory contained a large number of references to feeling angry, agitated or irritated.

Social signs

This subcategory concerns participants' reflections that other people's behaviour towards them had made them aware of their level of stress. This includes the examples: *I notice that people have stopped listening to me/ other people notice that I am stressed and they ask whether I want to talk about it*.

Stress triggers

The possible causes of stress described by the participants are listed in Table 5 under three subcategories, namely, work-related triggers, home-related triggers and personal characteristics.

Table 5 Categorization of stress triggers

Subcategories	*Headings*
Work-related triggers	Workload; colleagues; client's challenging behaviour
Home-related triggers	Distressing life events; a lack of leisure time/relaxation
Personal characteristics	A wish to remain in control; perfectionism; painful past experience; social sensitivity; difficulty coping with uncertainty

All utterances from the written assignments were grouped under one of the headings. Headings were then grouped under one of the subcategories. The subcategories in Table 4 belonged to the main category stress signals. Examples of accompanying utterances are described in the Results section of study one. Assignments were written in Dutch. The table shows the best fitting translations.

Work-related triggers

The three types of work-related stress mentioned by participants were as follows: (i) workload (*I feel under pressure to finish jobs*); (ii) colleagues (*there's a lot of negativity in our team/a lack of back up from my colleagues*); and (iii) client's challenging behaviour (*a serious incident/ working with a new client with possible challenging behaviour*).

Home-related triggers

Participants identified two causes of stress linked to their personal lives: (i) distressing life events and (ii) a lack of leisure time/relaxation (*I don't have time to see my friends*).

Personal characteristics

Participants described five types of personality traits and past experiences that they felt contributed to their stress: (i) a wish to remain in control (*I become upset when things don't go according to plan*); (ii) perfectionism (*I want everything to be perfect, and I put myself under a lot of pressure*); (iii) painful past experience; (iv) social sensitivity (*I am sensitive to other people's reactions/I don't feel understood*); and (v) difficulty coping with uncertainty (*I feel insecure when I don't know what to expect*).

Coping strategies

The third and final category is about how participants talked about preventing stressful situations or coping, and recovering from such situations. The present authors grouped the headings into six different subcategories listed in Table 6.

Physical interventions

Three types of physical intervention were described: (i) breathing techniques (*I try to reduce my stress by controlling my breathing*); (ii) physical activity (*taking my dog for a walk*); and (iii) heart rhythm variability coherence feedback training [*I practice improving my heart-rhythm variability coherence* (McCraty & Childre 2010)].

Table 6 Categorization of coping strategies

Subcategories	*Headings*
Physical interventions	Breathing techniques; physical activity; heart rhythm variability coherence feedback training
Cognitive interventions	Think/rationalize; reflection; put in perspective; recognizing the signs
Seek distraction/ wait	Distraction; timeout/distance; time for myself/relaxation
Planning and priorities	Making priorities; making plans; being organized
Confrontation	Dealing with it
Social support	Talking with others; ask for help from others or accept help; tell other people what you can cope with

All utterances from the written assignments were grouped under one of the headings. Headings were then grouped under one of the subcategories. The subcategories in Table 4 belonged to the main category stress signals. Examples of accompanying utterances are described in the Results section of study one. Assignments were written in Dutch. The table shows the best fitting translations.

Cognitive interventions

There were four types of cognitive interventions: (i) think/rationalize (*I try to work out what went wrong*); (ii) reflection; (iii) put in perspective (*I have learned to take things with a pinch of salt*); and (iv) recognizing the signs (*knowing the signs of becoming stressed helps me prevent a build up*).

Seek distraction/wait

This subcategory is about the avoidance of stressful situations and three types approach were described: (i) distraction (*thinking about something pleasant*); (ii) time out/distance (*I count up to ten/I take myself out of the situation and find somewhere quiet and I literally say 'stop' to myself*); and (iii) time for myself/relaxation (*I take some rest/I go shopping with a friend*).

Planning and priorities

This subcategory concerns three ways of preventing stress: (i) making priorities (*I make a list of all my tasks and then decide what to do first*); (ii) making plans (*I plan to take days off/I plan to do something enjoyable when I know that I'm going to be facing a tough time*); and (iii) being organized (*making sure I deal with things in a timely fashion to avoid becoming stressed about them*).

Dealing with it

This subcategory concerned the participants' attempts to deal directly with the perceived causes of stress (*I just keep going/I try to sort things out*).

Social support

The final type of coping strategy participants described concerned social support: (i) talking with others; (ii) ask for help from others or accept help (*asking my colleague to take on some of my work load*); and (iii) tell other people what you can cope with.

Not only does the content analysis reveal the type of views presented by the participants in both groups, but it also shows that staff came up with an impressive variety of utterances when reflecting on their stress-management processes. The broad range of headings is important because it indicates that the content of reflections regarding stress-management processes varies for each individual participant.

Phase 2: Quantitative Analyses

The quantitative analysis involved a more rigorous fine-grained analysis of the data to examine changes in the assignments over time and between groups. This analysis was based on the same broad coding frame that emerged in the content analysis of (i) stress signals, (ii) stress triggers and (iii) coping strategies.

Preparing data for quantitative analyses

Two procedural steps were taken to reliably prepare the written assignments for quantitative data analysis. First, the present authors developed a coding scheme that enabled us to divide each written story into clauses (i.e. a group of words containing a subject and verb which forms part of a sentence). Rules in the coding scheme were based on basic grammatical sentence constructions (i.e. subject, adjunct, subordinated clauses and enumerations). Based on the coding scheme, the following piece of text: '*When a colleague accuses me undeservedly, I start to feel uncomfortable and tense in my shoulders. I recover by concentrating on my breathing and considering the situation from a distance.*' was subdivided into the following five

clauses: (i) *'When a colleague accuses me undeservedly'*; (ii) *'I start to feel uncomfortable'*; (iii) *'and tense in my shoulders.'*; (iv) *'I recover by concentrating on my breathing'*; and (v) *'and consider the situation from a distance.'*. To test inter-rater reliability, one of the authors and a master student in psychology independently coded 20% of the assignments. There was agreement on 97%, which indicated high inter-rater reliability for this random sample of assignments. Thereupon, the rest of the assignments (i.e. the remaining 80%) were independently coded by both the author and the student. There was 87% agreement between them, which again indicated high inter-rater reliability. Afterwards, the coding of all disagreements (i.e. 13%) was discussed until consensus was reached. To reduce potential biases, both the author and the master student were blind to the participants' group membership (i.e. control or experimental; pre-test or post-test) during the coding of the assignments.

In the second step, each clause generated from the grammatical coding scheme was categorized based on its content, according to four categories. The first clause category concerned the observation of internal or external signs of stress. Clauses were labelled as *'Stress Signals'* when the content of the clause gave a description of what staff members feel, think or do during stressful situations. Descriptions that were quite abstract (e.g. *'I feel strange'*) were not excluded as long as the description was related to the observation of stress signals. Examples in the category stress signals were *'I become chaotic'*; *'My breathing changes'*; and *'I find it hard going to sleep'*. The second clause category was about the triggers of stress responses. Clauses in this category were labelled as *'Stress Triggers'* when the content of the clause gave an explanation or cause of the staff member's stress response. A range of explanations were allowed, the present authors applied this code staff mentioned anything about factors contributing to their stress reactions. Examples from the stress triggers category included, *'I planned too many things in a rush'*, to *'When there is a lot of negativity in the group (for example a negative attitude from parents)'*, to *'When someone is becoming increasingly aggressive and I am not sure how it will turn out.'* The third clause category focused on coping strategies that staff use when they want to prevent, decrease and/or recover after stressful situations. Clauses were labelled 'Coping Strategies' when the description was related to what staff did or wanted to do, to manage stressful situations. No judgements were made about the quality or efficiency of the strategies that were mentioned. Examples in the category coping strategies included the following: *'Most of the time, it helps to talk with others'*; *'Take pleasure from little things in life'*; and *'I ask colleagues to take over some of my tasks'*. The final 'Other' clause category included all clauses that did not fit the categories described above. Clauses in the category 'Other' were, for example, *'I do not often feel stressed'* and *'I do regularly think about this'*.

One of the authors and a master student in psychology independently used the categorization scheme on 24 (20%) of the assignments. They reached agreement on 94% of the categorizations, which again indicated high inter-rater reliability. Thereafter, the rest of the clauses were independently categorized by both the author and the student. Any disagreements were discussed and consensus was reached about the code to be applied. Again, both the author and the master student were blind to the participants' group membership (i.e. control or experimental; pre-test or post-test) during the coding of the assignments.

Raw data consisted of the number of clauses that each written assignment contained within each clause category. An average assignment consisted of 13 clauses (SD = 6.8), which were attributed to one of the four categories. Absolute values were converted into proportions by calculating the proportion of total clauses within each clause category.

Results and Conclusions

The effect of training

A 2 (group: experimental versus control) X 2 (assessment scores: pre-test versus post-test) X 3 (clause category: stress signals versus stress triggers versus coping strategies) analysis of variance (ANOVA) on the mean proportions on the written assignment was used to examine the impact of training. Group was treated as a between-subjects variable. Assessment scores and clause category were treated as within-subjects variable (repeated measure). Means and SDs are presented in Table 7. The significant interaction between group, assessment scores and clause category resulted in separated analyses for both the experimental and the control group [$F(2, 120) = 5.81$, $P = 0.004$].

Pre- and post-comparisons within the control group

A 2 (assessment scores: pre-test versus post-test) X 3 (clause category: stress signals versus stress triggers versus coping strategies) analysis of variance (ANOVA) on the mean proportions was used to examine the impact of non-training on the control group. No significant

Table 7 Pre-test, post-test, and follow-up scores on the written assignment 'self-awareness regarding personal stress management'

		Composition of the written assignment in percentages							
		Stress signals		*Stress triggers*		*Coping strategies*		*Other/rest*	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control group									
Pre-test	31	28.48	21.30	15.42	11.32	40.11	18.37	15.98	17.39
Post-test	31	28.43	19.00	13.19	13.19	42.58	15.19	15.80	17.86
Experimental group									
Pre-test	31	39.38	21.53	16.95	15.84	28.86	12.10	14.81	19.76
Post-test	31	20.64	16.66	21.94	20.81	39.21	16.74	18.22	21.46
Follow-up	30	30.80	19.39	14.61	18.76	36.73	16.58	17.86	17.66

interaction between assessment scores and clause category occurred, indicating that the composition of the assignment (i.e. the different clause categories) was similar on pre-test and post-test. Stated differently, the control group had not changed, thus test–retest effects did not emerge.

Pre- and post-comparisons within the experimental group

A 2 (assessment scores: pre-test versus post-test) X 3 (clause category: stress signals versus stress triggers versus coping strategies) analysis of variance (ANOVA) on the mean proportions was used to examine the impact of training on the experimental group. A significant interaction was found between assessment scores and clause category, [$F(2, 60) = 10{,}71$, $P < 0.001$]. Post hoc t tests were conducted to test for differential effects between pre-test and post-test scores. Regarding the pre-test scores, clauses on stress signals were reported more frequently than both clauses on stress triggers [$t(30) = 3.71$, $P = 0.001$] and clauses on coping strategies [$t(30) = 2.77$, $P = 0.030$]. Clauses on coping strategies occurred more often than clauses on stress triggers [$t(30) = 3.35$, $P = 0.002$]. Regarding the post-test scores, the composition of the assignment changed. The percentage of clauses on stress signals was similar to the percentage of clauses on stress triggers. In contrast to the pre-test, clauses on coping strategies occurred more often than clauses on stress signals [$t(30) = 4.57$, $P < 0.001$] and on stress triggers [$t(30) = 2.93$, $P = 0.006$]. This means that the number of clause categories (i.e. stress signals versus stress triggers versus coping strategies) in the written assignments changed when pre- and post-test scores were compared. In the pre-test, the most dominant clauses concerned stress signals, whereas in the post-test clauses regarding coping strategies were proportionately higher.

Follow-up effectiveness in the experimental group

Follow-up data were collected for the experimental group only. Therefore, a 3 (assessment scores: pre-test versus post-test versus follow-up) X 3 (clause category: stress signals versus stress triggers versus coping strategies) analysis of variance (ANOVA) on the mean proportions was used to examine the follow-up effect of training on the experimental group. This analysis revealed that the interaction between assessment and clause category was significant [$F(4, 116) = 5.60$, $P < 0.001$]. Therefore, the present authors analysed the effect of assessment timing for each clause category separately. Post hoc tests indicated that the percentage of clauses on stress signals during pre-test was higher than the percentages during post-test and follow-up. There was no difference in the percentage of clauses on stress signals between post-test and follow-up scores. Regarding the clauses on stress triggers, there was no main effect of assessment, which means that the percentages of clauses on stress triggers did not change over time. Finally, the percentage of clauses on coping strategies was higher in the post-test and follow-up compared with pre-test. Post-test and follow-up scores were similar. This means that the decrease in percentage of clauses on stress signals and the increase in clauses on coping strategies over time were maintained at follow-up.

In conclusion, no changes occurred in the composition of writing assignments of the control group, but in the experimental group a decrease in the proportion of stress signals and an increase in the proportion

of coping strategies emerged. These positive changes in the experimental group were maintained at follow-up.

General Discussion

In this study, the present authors evaluated the effect of a 4-day stress-management training for staff members serving clients with intellectual disability and challenging behaviour. The findings are based on the written assignments of staffs' reflections about how they deal with stress. Original data from the assignment were analysed using two linked phases.

In the first phase, the present authors analysed the content of the assignments. This qualitative analysis revealed a detailed insight into the broad variety of views that participants put forward when writing about how they dealt with stress. Although this study focussed on a particular group of staff in mental healthcare services, the outcomes correspond with the typical description of symptoms, factors and strategies described in most common texts about stress (Ross & Altmaier 1994). However, as might be expected, the content of views expressed varied considerably across the participants in both the groups, suggesting that people had their own 'personal approach' to dealing with stress. Hence, it cannot be said that there is one typical combination of stress signals, triggers and coping strategies for staff working with people presenting challenging behaviour. This means that when investigators develop and evaluate training for staff members, they need to take these individual coping styles into account. Doing so will help staff to find the most effective ways of coping with stress that are appropriate for them. This finding is related to the notion that people have different learning styles (Kolb 1976), and Rose *et al*. (2003) suggestion that staff should be offered different entry points to knowledge and coping strategies when being trained to deal with stressful situations.

In the second phase of the study, the present authors conducted more fine-grained quantitative analyses of the written assignments to compare their composition within and between groups. These analyses revealed that the content of the control group's written assignments did not change over time, whereas those written by the experimental group did. After training, participants of the experimental group devoted more attention to coping strategies, which resulted in a decrease in the amount written about stress signals.

This study provides cautious optimism that the positive changes in the experimental group's written assignments were an effect of the in-service training programme. It might also be suggested that the open-ended nature of the written assignment helped to reduce the possibility of the experimental group participants producing socially desirable responses at the post-training stage. Nor could the findings be explained by differences in the literacy skills of the two groups, as they both had very similar levels of educational attainment. However, careful interpretation of the data is required, because proportions of the clause categories were not fully independent.

The choice of measures to assess the effectiveness of training could be regarded as a limitation of this study. The present authors did not neither use standardized measures like coping questionnaires nor observe staff behaviour. It is, however, debatable whether changes on such distal levels of outcome could be expected after 4 days of in-service training. On the basis of meta-analysis of van Oorsouw *et al*. (2009), the present authors know that the effectiveness of training is much stronger when in-service training is combined with coaching on the job. The increased focus on coping strategies is potentially important in its own right, and it may help to prepare the ground for additional, more individualized, coaching on the job regarding stress management. Thus, if the changes in the participants' written assignments reflect changes in the thinking of staff members and a greater awareness of what causes their stress, then in-service training may provide an important starting point for achieving positive change.

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