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An Empirical Evaluation of Dialectical Behavior Therapy Skills Training for Residential Treatment Center Staff

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Abstract

The aim of this intervention study was to investigate possible effects of dialectical behavior therapy skills training (DBT-ST) for staffs at a residential treatment center for patients with serious mental illness. Eighteen staffs divided in two groups were assessed before and after participation in DBT-ST. The intervention lasted one year for each group. Mean number of self-injuries each month were calculated for patients (N = 64) at the center receiving DBT during the baseline, intervention, and post-intervention years. Staff participation in DBT-ST was associated with increases in self-reported mindfulness and improvements in the work environment. The number of staffs who reported frequent violent incidents at work decreased from 39% to 11%. A significant and large reduction (r = -.63) was found in the number of self-injuries among patients following DBT-ST for the first group of staffs. The study demonstrates that important aspects of mindfulness probably can be learned by staffs without engaging in meditation-based programs. Further, the results suggest the hypothesis that promoting increased mindfulness among staffs can contribute to a reduction of self-harm and violence among patients. The findings are discussed with reference to a cognitive declarative-procedural-reflective model of therapist skill development (Bennett-Levy, 2006).

Keywords: Mindfulness, dialectical behavior therapy, personal therapy, staff, self-injury.

An Empirical Evaluation of Dialectical Behavior Therapy Skills Training for Residential Treatment Center Staff

Personal therapy has been part of psychotherapist training since the inception of the profession (Bennett-Levy, Lee, Travers, Pohlman, & Hamernik, 2003; Norcross, 2005; Orlinsky, Schofield, Schroder, & Kazantzis, 2011; Rizq, 2011). However, major differences exist between both psychotherapy orientation and countries in the amount of personal therapy that is required, if any, and what form it should take (Laireiter & Willutzki, 2003). The potential benefits of personal therapy have been difficult to study, but it has been argued that the gains are substantial and that personal therapy therefore is essential for the professional development in this field of work (Norcross, 2005).

In recent years, various attempts have been made to capture what makes personal therapy, and other kinds of personal experiential work, worthwhile for clinicians, and to conceptualize this in theoretical terms (Bennett-Levy, 2006; Bennett-Levy et al., 2001; Bennett-Levy & Thwaites, 2007; Laireiter & Willutzki, 2003; Sheikh, Milne, & MacGregor 2007). According to a cognitive declarative-procedural-reflective model, Bennett-Levy (2006) suggested that personal experiential work may contribute to therapist skill development in two different ways. Firstly, if therapists experience therapeutic techniques at first hand, the techniques could become represented in the therapist's self-schema, not only in the self-as-therapist schema. This should make them more easily accessible when working with clients. Secondly, by focusing on the person of the therapist and possibly modifying her/his self-schema, interpersonal functioning could improve. Bennett-Levy (2006) distinguished between three different but related interpersonal functions: Therapist attitude, relational skills and perceptual skills. According to Bennett-Levy (2006), these are not likely to change without personal experiential work. Neglecting this aspect of training could therefore, among other things, limit therapists' ability to tune in to their clients.

One personally experiential method that Bennett-Levy and Thwaites (2007) briefly referred to, and which holds some potential for enhancing clinicians' ability to relate to their clients, is mindfulness practice. Bruce, Manber, Shapiro, and Constantino (2010), for example, suggested that mindfulness could be a method for developing empathy, openness, acceptance and compassion. Likewise, Block-Lerner, Adair, Plumb, Rhatigan, and Orsillo (2007) argued for an approach of acceptance and mindfulness in facilitating perspective-taking and empathy. These propositions were partly supported by a recent review (Chiesa & Serretti, 2009) which concluded that mindfulness-training for healthy people increases empathy and self-compassion. In couples, mindfulness seems to be related to marital quality

through the ability to identify, regulate and communicate emotions (Wachs & Cordova, 2007). Other studies have also shown that mindfulness training for clinicians reduce negative psychological symptoms and increase positive experiences of oneself and of others (Escuriex & Labbé, 2011), is perceived as credible and beneficial (Irving, Dobkin, & Park, 2009; Rimes & Wingrove, 2011; Shapiro, Astin, Bishop, & Cordova, 2005; Shapiro, Brown, & Biegel, 2007), and might indirectly influence therapy outcome in a positive way (Grepmair et al., 2007).

However, for the vast majority of mental health workers, any kind of personal therapy or personal experiential work is not part of their training or professional development. Employees at psychiatric inpatient and residential treatment units, at least in Sweden, usually belong to professions without specific training in psychotherapy, that is, registered and auxiliary nurses. Still, the interpersonal challenges in this line of work can be as demanding as in individual psychotherapy, if not more so. Staffs are supposed to quickly form alliances with patients who sometimes have severe social skills deficiencies, which they then relate to in various ways during whole workdays. Whether the unit's orientation is mainly medical or psychotherapeutic, the whole staff probably plays some role in decreasing patient's symptoms and in increasing patient's ability to handle their symptoms. One way to improve the quality of psychiatric care on a large scale could therefore be the introduction of some kind of personal experiential work for staffs at inpatient and residential units.

Didonna (2009) for example, advocated a mindful therapeutic setting during psychiatric hospitalization, where staffs trained in mindfulness create an environment characterized by tolerance, emotional validation and empathy. Studies by Singh and colleagues (Singh et al., 2006c; 2009; Singh, Singh, Sabaawi, Myers, & Wahler, 2006c) have shown that mindfulness training and mindfulness-based mentoring of inpatient staffs can improve both caring skills and patient satisfaction. Their data also suggest that mindfulness training of staffs can reduce the frequency of aggressive incidents among patients in a more effective way than regular skills training. Swenson, Sanderson, Dulit, and Linehan (2001) described how staffs trained in dialectical behavior therapy (DBT) can create an awake, validating and constructive inpatient treatment environment for patients with borderline personality disorder.

Mindfulness is today taught in many different ways. Chiesa & Malinowski (2011) made a distinction between mindfulness-based interventions, which involve formal meditation, and mindfulness-informed interventions, in which they embraced different kinds of psycho-education and skills training, including DBT. In DBT, individual therapy is combined with a skills training group (Linehan, 1993a). Skills in four domains are taught; mindfulness,

interpersonal effectiveness, emotion regulation and distress tolerance in a way similar to a class. Mindfulness is a central theme that is integrated in all aspects of DBT, and modelling by therapists and group leaders plays an important part in the development of mindfulness skills (Rizvi, Welch, & Dimidjian, 2009). DBT skills training (DBT-ST) has shown promising results as a stand-alone treatment for different client groups (Harley, Baity, Blais, & Jacobo, 2007; Sakdalan, Shaw, & Collier, 2010; Soler et al., 2009).

In the present study, DBT-ST was evaluated as personal experiential work for staffs at a residential treatment center for adults with serious mental illness, mostly personality disorders and self-injurious behavior. Based on theory and previous research, the main hypothesis was that the intervention would be associated with beneficial effects for the participants, partly in the form of an increase in mindfulness and a decrease in perceived stress, partly in the form of positive changes in their work environment. Consistent with previous studies, a second hypothesis was that patients at the center also would show positive changes in the form of a reduction in the number of self-injurious behaviors and days of acute hospitalization.

Method

Setting

The setting was a 30-bed inpatient residential treatment center located in the south of Sweden. The center accepts patients between 18-50 years of age with debilitating psychiatric problems, mostly personality disorders. Typically, patients are placed here by public health care or social services when usual care has failed to show satisfactory result, and patients have been assessed to possibly benefit from long-term residential care. Treatments offered at the center are DBT, cognitive behavioral therapy, environmental therapy and social skills training. The center has 36 employees working directly with patients. The DBT-team is formed by 7 of its employees, all properly trained in DBT and regularly supervised.

Intervention

In order to improve over-all care at the center, a decision was made by the management to let 23 of the staff (and two of the management) undergo DBT skills training (DBT-ST). Selected staffs were divided into two groups who underwent the standard version of DBT-ST (Linehan, 1993b), 30 two-hour sessions during one year for each group. Formal mindfulness meditation consisted of 5 minutes at the beginning of each session.

The first group (DBT-ST 1) was led by an experienced DBT-therapist and supervisor not working at the center. The second group (DBT-ST 2) was implemented the following year

and led by one of the staffs working as a DBT-therapist, who had also been co-therapist in the first group. The intervention lasted two years in all.

Participants

Staffs. The management allocated participants to the two different DBT-ST groups in consideration of current schedules, other commitments at the center and personal preferences (i.e. no randomization). Two members of the management chose to participate themselves in DBT-ST 2, but were excluded from the study as they did not work directly with patients. 21 (of 23) accepted participation in the study, 11 (of 12) in DBT-ST 1 and 10 (of 11) in DBT-ST 2. In the following assessments, 8 in DBT-ST 1 and 10 in DBT-ST 2 responded. Only those who completed both pre- and post-intervention assessments were included in the analyses.

Table 1

Characteristics of the responding participants in the two DBT-ST-groups

		DBT-ST 1, *n*=8	DBT-ST 2, *n* =10
		M (*SD*)	*M* (*SD*)
Age		40 (9.2)	43 (10)
Years employed		14 (9.8)	13 (13)
Working hours per week		35 (5.2)	37 (5.0)
		n (percent)	*n* (percent)
Sex	Female	7 (87.5)	6 (60)
	Male	1 (12.5)	4 (40)
Education	Elementary school		2 (20)
	High school	6 (75)	5 (50)
	University	2 (25)	3 (30)
Profession	Registered nurse	1 (12.5)	1 (10)
	Auxiliary nurse	7 (87.5)	4 (40)
	DBT-therapist		2 (20)
	Youth worker		2 (20)
	Rehab coordinator		1 (10)

Patients. 76 individual patients were staying at the center at some time during the study period of four years (baseline, intervention and post-intervention period). 64 of those were treated with DBT and therefore included in the analyses. As shown in table 2, patients treated with DBT did not differ in a significant way concerning mean GAF (Global assessment of

functioning scale; American Psychiatric Association, 1994) as a measure of symptom severity at intake, age or sex. A consequence of the staff becoming more familiarized with DBT skills training through the intervention, was that in the third year of the study the center began to offer DBT to patients to a greater extent than before, and also chose to accept more patients diagnosed with borderline personality disorder.

Table 2.

Characteristics of patients treated with DBT at the center during the study period.

		Total (year 1-4) *N*=64[a]	Baseline (year 1) *N*=24	DBT-ST 1 (year 2) *N*=24	DBT-ST 2 (year 3) *N*=33	Post-intervention (year 4) *N*=37
		M (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Age		28.3 (7.2)	30.2 (6.9)	23.6 (14.1)	23.6 (12.7)	22.2 (11.1)
Length of stay (months)		15.3 (10.9)	21.5 (14.2)	21.6 (13.7)	18.7 (9.4)	15.0 (10.2)
GAF at intake		26.0 (13.1)	29.8 (13.6)	27.3 (5.6)	27 (5.8)	27.6 (6.8)
		n (percent)	*n* (percent)	*n* (percent)	*n* (percent)	*n* (percent)
Sex	Female	63 (98.4)	24 (100)	23 (95.8)	32 (97.0)	36 (97.3)
	Male	1 (1.6)		1 (4.2)	1 (3.0)	1 (2.7)
Diagnosis	BPD	35 (54.7)	12 (50.0)	11 (45.8)	17 (51.5)	23 (62.2)
	PD UNS	8 (12.5)	3 (12.5)	3 (12.5)	3 (9.1)	3 (8.1)
	Misc.[b]	21 (32.8)	9 (37.5)	10 (41.7)	13 (39.4)	11 (29.7)

[a] The total number of individual patients treated with DBT during the study period, several of whom stayed at the center for more than one year.

[b] I.a. ADHD, eating disorders, substance abuse and self-injurious behavior.

Measures

The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a self-report measuring tool assessing the general tendency to be mindful in daily life. It is composed of 39 items that are divided in five subscales: Non-reactivity, observing, acting with awareness, describing and non-judging. Items are rated on a 5-point likert scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). A Swedish translation of FFMQ has shown satisfactory psychometric properties for the different subscales (Lilja et al., 2011).

The General Nordic Questionnaire for Psychological and Social Factors at Work (QPSNordic; Wännström, Peterson, Åsberg, Nygren, & Gustavsson, 2009) is a broad self-

report questionnaire with satisfactory reliability, used for assessing health-related factors at work. QPSNordic consists of 118 work related questions covering 13 different areas, organized in three conceptual modules (task, individual and organization). Only subscales from the organization module were of interest in the analysis, together with a single independent item concerning violence at the workplace. Items are rated on a 5-point likert scale ranging from 1 (*very seldom or never*) to 5 (*very often or always*).

Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983) is a self-report instrument measuring subjectively perceived stress. It consists of 14 items, rated on a 4-point likert scale from 0 (*never*) to 4 (*very often*). A Swedish version of PSS has shown good psychometric properties, comparable to the original version (Eskin & Parr, 1996).

As part of the center's routine, all patients were assessed at admission with the Global Assessment of Functioning Scale (GAF; American Psychiatric Association, 1994). GAF is a 100-point scale divided into 10 categories reflecting degree of adaptive functioning. Evaluations of a Swedish version have shown satisfactory reliability (Sonesson, Tjus, & Arvidsson, 2010; Söderberg, Tungström, & Armelius, 2005). GAF together with the diagnosis included in the referral, age and sex were documented. The number of self-injuries and days of acute hospitalization (psychiatric intensive care) for each patient were collected every week during their stay at the center. The center accepted to share this data for the purpose of this evaluation, excluding any information that could identify individual patients. The data was used to produce two time-series by calculating the average number of self-injuries and hospital days per month and patient for those patients who were treated with DBT. The calculations were done for the year before the first group of staffs had received DBT-ST; during the two years DBT-ST was carried out, and in the year after the second DBT-ST-group had finished (four years in all).

Procedure

Closely before the start of the first DBT-ST group, the staff was informed of the study and given a written informed consent sheet. Participation in the study was fully voluntary and those who chose to participate were granted absolute anonymity towards the management. Questionnaires were distributed and staffs were allowed to fill these out during working hours. Filled-out questionnaires were stored in a confidential way away from the center. After one year, when the first DBT-ST group had finished but the second one not yet started, the same questionnaires were distributed again in the same way. After two years, the procedure was repeated a third time.

Design and data analyses

The intervention was evaluated with repeated measurements of both staffs and patients over a period of four years. Three quasi-experimental designs were applied; the nonequivalent comparison group design, the one-group pretest-posttest design and the time series design. Consequently, data was analyzed in three different ways: (a) Between-group analyses (ANOVA) were conducted, comparing change in the first group before and after DBT-ST, with the second group treated as a waiting-list control group. (b) Within-group (paired-sample) *t*-tests were carried out in order to detect pre-post intervention effects for both groups. Effect sizes (Cohen's *d*) were calculated for each dependent measure by dividing mean pre- to post-intervention differences with their pooled standard deviation (Nakagawa & Cuthill, 2007). (c) Simulation modeling analysis (SMA; Borckardt, 2006) was used to evaluate possible level change across phases in the two time series that charted self-injuries and hospital days among patients. In SMA, Pearson's *r* is calculated as a measure of effect size, together with the probability of obtaining that effect.

Results

Table 3 shows mean and standard deviations for FFMQ and PSS before and after DBT skills training for the first group. There were no statistically significant differences (independent samples *t*-test) between the two groups on any measure before the intervention. After the first round of DBT skills training, DBT-ST 1 had changed in the expected direction on all measures, with medium or high effect sizes (Cohen, 1988) on all but two subscales.

To compare differential change in mindfulness and perceived stress between the two groups before and after DBT skills training (for the first group), Repeated measurements (mixed 2x2) ANOVAs were conducted for FFMQ and PSS with time as within-subjects factor and group as between-subjects factor. The Time x Group interaction was statistically significant for FFMQ Total; $F(2,16) = 4.53$, $p = .049$, and for FFMQ Nonreact; $F(2,16) = 4.56$, $p = .049$.

A study of simple main effects showed that the interaction effect on FFMQ Total was entirely due to a marginally significant increase in Group 1 [$t(7) = -2.14$, $p = .070$]. A similar analysis of the interaction effect on Nonreact showed that it was due to a significant increase in Group 1 [$t(7) = -4.07$, $p = .005$]. As seen in the Table, Group 1 also showed an increase on Observe; this did not, however, result in any significant interaction effect, because Group 2 also tended to increase their scores on Observe.

Table 3

Mean scores on the Five Facet Mindfulness Questionnaire (FFMQ) and the Perceived Stress Scale (PSS) at T1 and T2, with comparisons by paired t-test, and within-group effect sizes.

DBT-ST 1 (n=8)	Time 1		Time 2				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
FFMQ Nonreact	23.50	3.63	27.25	4.65	-4.07	.005	0.91
FFMQ Observe	27.00	4.31	30.38	7.01	-2.53	.039	0.58
FFMQ Act aware	28.50	4.99	30.63	5.80	-0.92	.388	0.39
FFMQ Describe	30.00	4.66	31.75	6.25	-0.92	.389	0.32
FFMQ Nonjudge	31.38	5.50	34.75	4.20	-2.76	.028	0.69
FFMQ Total	140.38	19.17	154.75	21.18	-2.14	.070	0.74
PSS	22.13	5.36	18.13	5.28	1.92	.097	-0.75
DBT-ST 2 (n=10)	Time 1		Time 2				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
FFMQ Nonreact	23.50	3.89	23.80	4.71	-0.24	.814	0.07
FFMQ Observe	24.50	7.66	26.70	5.42	-2.07	.068	0.33
FFMQ Act aware	31.00	4.81	30.20	6.03	0.89	.399	-0.14
FFMQ Describe	31.70	4.19	31.20	4.21	0.46	.660	-0.12
FFMQ Nonjudge	33.30	6.29	32.40	5.30	-1.27	.235	-0.16
FFMQ Total	144.00	16.65	144.30	19.29	-0.12	.909	0.02
PSS	20.00	9.76	19.50	9.24	0.19	.851	-0.05

At time 3, the second group of staffs (DBT-ST 2) had also completed DBT skills training. Change between time 2 and 3 for DBT-ST 2 was in the expected direction for all measures, moderate and nearly significant (paired-sample *t*-test) for FFMQ Nonjudge; $t(9) = 2.19$, $p = .057$, $d = 0.60$, small and nonsignificant for FFMQ Nonreact ($d = 0.30$), Observe ($d = 0.33$) and Total ($d = 0.41$).

Table 4 presents means, standard deviations and change (paired-sample *t*-test) for the whole group (DBT-ST 1 & 2) between time 1 and 3 (the whole intervention period), including the QPS Nordic Organizational module as a measurement of possible change in the work environment during the two years that the intervention took place.

Table 4

Mean scores on the Five Facet Mindfulness Questionnaire (FFMQ), the Perceived Stress Scale (PSS), and the General Nordic Questionnaire for Psychological and Social Factors at Work (QPSNordic) at T1 and T3, with comparisons by paired t-test, and within-group effect sizes.

DBT-ST 1 & 2 (N=18)	Time 1		Time 3				
	M	*SD*	*M*	*SD*	*t*	*p*	*d*
FFMQ Nonreact	23.50	3.67	25.67	4.07	-3.01	.008	0.57
FFMQ Observe	25.61	6.35	28.44	5.71	-2.69	.015	0.46
FFMQ Act aware	29.89	4.91	30.33	4.34	-0.49	.634	0.09
FFMQ Describe	30,94	4.36	31.44	4.59	-0.58	.567	0.11
FFMQ Nonjudge	32.44	5.86	34.83	4.58	-2.53	.021	0.46
FFMQ Total	142.39	17.37	150.72	15.66	-3.47	.003	0.54
PSS	20.94	7.97	17.56	6.87	1.81	.088	-0.44
QPS Nordic: Organizational module							
Support from superior	4.30	0.78	4.19	0.67	0.95	.357	-0.15
Support from coworkers	4.31	0.69	4.33	0.71	0.24	.816	0.03
Support from friends	3.76	0.91	3.19	1.34	2.04	.570	-0.51
Empowering leadership	3.83	0.98	3.67	0.97	1.04	.312	-0.16
Fair leadership	4.41	0.63	4.39	0.60	0.14	.889	-0.03
Social climate	4.09	0.87	4.44	0.47	2.29	.035	0.52
Innovative climate	3.89	0.58	3.76	0.62	1.16	.261	-0.22
Inequality	1.61	0.72	1.25	0.35	2.72	.015	-0.67
Human resource primacy	3.74	0.91	4.19	0.89	2.83	.012	0.50

There were statistically significant differences (in the expected direction) between these two assessments on the FFMQ Total and the subscales Nonreact, Observe and Nonjudge with low or moderate effect sizes; and on QPS Nordic Organizational Module Social Climate, Inequality and Human resource primacy (questions like “To what extent is the management interested in staff health and wellbeing?”) with moderate effect sizes

Table 5 presents differences in the experience of threats or violence among both groups of staffs (DBT-ST 1 & 2) at the three different assessments. The trend was in the expected direction, with a small but important reduction in the number of staffs who reported frequent violent incidents at work (ratings of 3, 4 or 5 decreased from 39% to 11% between T1 and T3).

Table 5

Frequency of ratings on General Nordic Questionnaire for Psychological and Social Factors at Work (QPSNordic) item No. 31, "Have you during the past two years become subjected to threats or violence at work?" at T1, T2 and T3 (N = 18).

		Time 1	Time 2	Time 3
		n (percent)	*n* (percent)	*n* (percent)
Rating	1 (very rarely or never)	8 (44.4)	11 (61.1)	9 (50.0)
	2 (only rarely)	3 (16.7)	6 (33.3)	7 (38.9)
	3 (sometimes)	5 (27.8)		2 (11.1)
	4 (quite often)	1 (5.6)	1 (5.6)	
	5 (very often or always)	1 (5.6)		

Figure 1 shows monthly data on the average number of self-injuries per patient that was in DBT-treatment each month respectively. Following DBT-ST 1, the number of self-injuries seemed to decrease substantially between year 2 and 3.

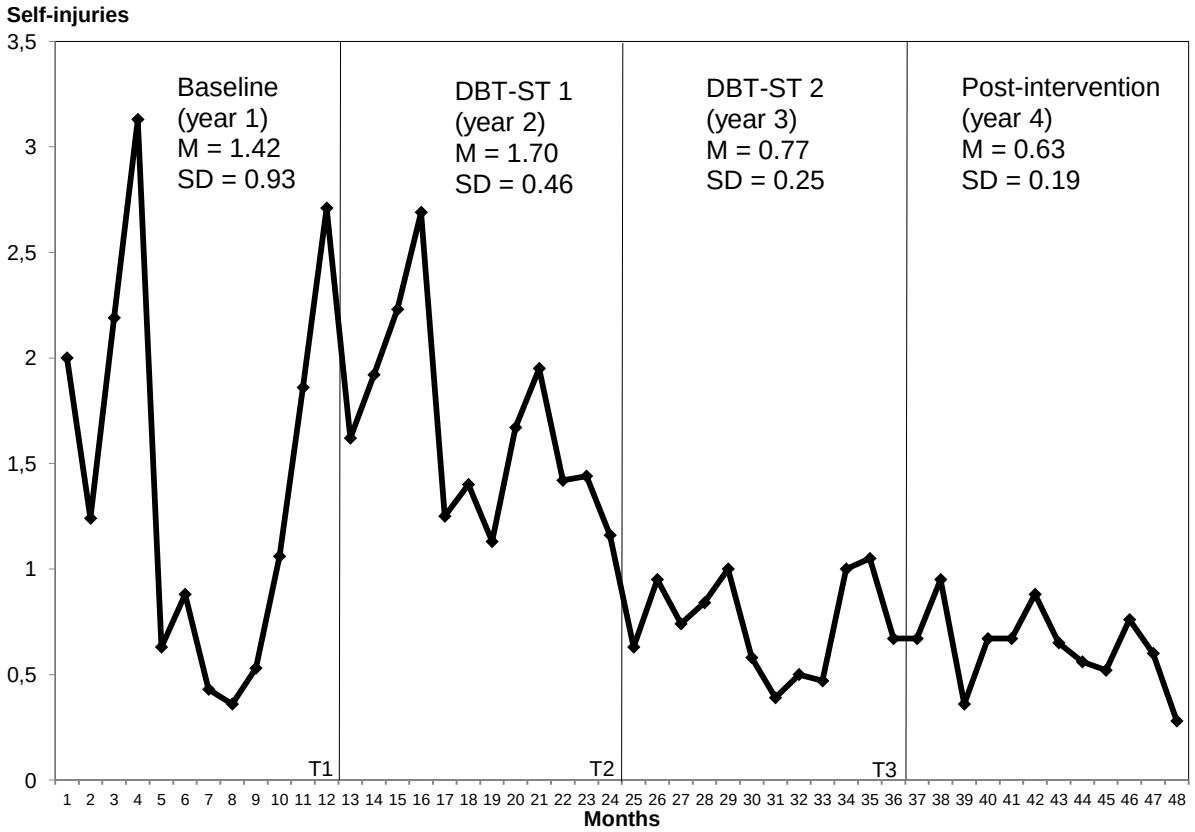

Figure 1

Average number of self-injuries per patient each month during baseline and the study period.

The visible decrease was analyzed statistically with SMA, comparing year 1 and 2 with year 3 and 4 (N = 48). This analysis yielded a large (Cohen, 1988) and significant effect for level change between these two phases (r = -.63, p = .01).

Figure 2 shows monthly data on the average number of days patients had to be hospitalized (transferred to acute psychiatric intensive care). Following DBT-ST 1, this number seemed to decrease as well. Level change analysis was conducted with SMA, comparing year 1 and 2 with year 3 and 4 (N = 48). This analysis indicated a trend in the expected direction (r = -.39, p = .13).

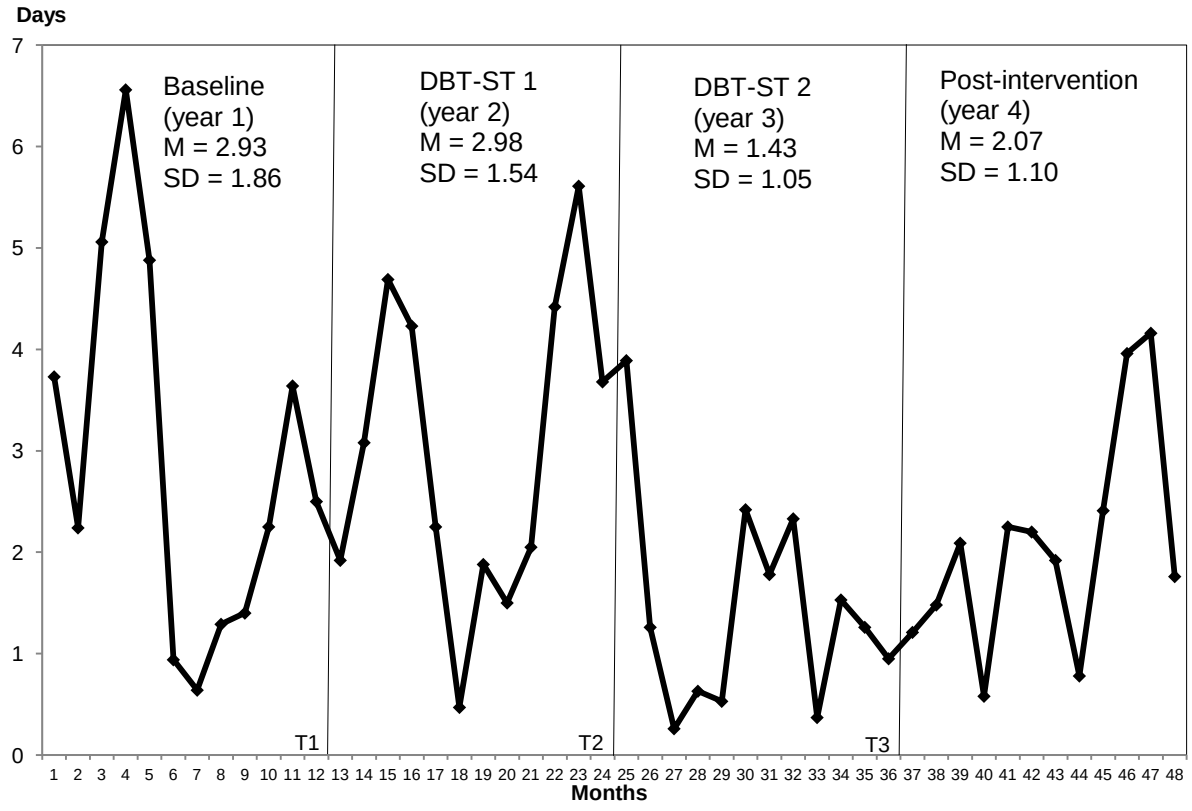

Figure 2

Average number of days of acute hospitalization (psychiatric intensive care) per patient each month during baseline and the study period.

Discussion

Consistent with the main hypothesis, dialectical behavior therapy skills training (DBT-ST) for a mixed group of staffs at a residential treatment center was associated with an increase of mindfulness and improvements in the work environment. As assumed, the results also showed positive changes among the patients, manifesting primarily as a reduction in the number of

self-injuries. Looking closer at changes in mindfulness among staffs, facets of observation and emotional acceptance (Nonreact and Nonjudge; Baer et al., 2006) were most probably affected. That acceptance improved after the intervention is not surprising as a central aim of DBT-ST is to change the way emotions are perceived and responded to (Linehan, 1993a). To be able to accept one's own emotions is an important part of what Bennett-Levy (2006) referred to as interpersonal perceptual skills. If emotional contagion is taken into account, staffs must correctly perceive and tolerate their own feelings and reactions in order to accurately tune in and respond to patients emotional states. Acceptance should therefore be especially important when staffs experience strong emotions and transference reactions to patients, a common issue when patients diagnosed with borderline personality disorder are treated at inpatient units (Fagin, 2004).

The ability of staffs to attentively observe what is happening with patients at the center is another key aspect of interpersonal perceptual skills (Bennett-Levy, 2006). This ability is probably very important as well, particularly in order to prevent minor emotional disruptions to escalate, but also to be able to more generally shape behaviors in a positive way through contingency management. It is unclear why the Observe subscale of FFMQ increased for both groups between time 1 and time 2. As both groups worked together at the same center, it could have been an expression of diffusion of treatment (Kazdin, 2009) where DBT-ST 1 somehow influenced DBT-ST 2 in this respect.

Change in perceived stress was marginally significant, large for the first group and small for both groups combined. It is worth to note that the baseline levels were low compared to, for example, normative data reported by Cohen, Kamarck, & Mermelstein (1983), something that could indicate a floor effect. Similarly, levels of organizational estimates are suggestive of a very benign work environment at the beginning of the study (compared with responses given by employees working in a Swedish country council; Wännström, Peterson, Åsberg, Nygren, & Gustavsson, 2009), suggesting a ceiling effect for several of these subscales. Still, the possible improvements in stress and social climate are indicative of a positive change during the study period. Perhaps most importantly, a reduction was found in the number of staffs who reported frequent violent incidents at work. This could all be due to an increase of mindfulness among them, in accordance with prior research.

The large and significant change in number of self-injuries per patient and month is intriguing. There could of course be several reasons for this, one being that the DBT-team became more proficient during the study period, something that was not examined. Another factor, consistent with Bennett-Levy's (2006) reasoning, would be that the skills taught in

DBT-ST became more easily accessible for staffs that personally had experienced them and integrated them in their self-schemas. Together with improved interpersonal perceptual skills, staffs could have become better able to tune in to patients, embody and transmit emotion regulation skills at critical points. In this way, the number of incidents resulting in self-harm could have been reduced. An increase in the skills taught in DBT-ST among staffs could also have helped create a more mindful therapeutic setting, consistent with Didonna's suggestions (2009). As the borderline personality disorder psychopathology often expresses itself through destructive transactions between invalidating environments and individuals with emotion dysregulation (Hoffman, Fruzetti, & Swenson, 1999), a positive change in the center's climate should also reduce the number of invalidating interactions that otherwise could result in self-injury and deterioration of psychiatric symptoms. Whatever the cause, indirect effects of mindfulness-training would be consistent with several previous studies, most notably by Singh and colleagues (Singh et al., 2004, 2006a, 2006b, 2007, 2009, 2010).

The decreases in self-injuries and hospitalization among patients appeared following DBT-ST for the first group of staffs and no further improvements were found after DBT-ST for the second group. Effect sizes on measurements of mindfulness and stress were higher for the first group compared with the second and the presumed reduction in violent incidents towards personnel appeared after DBT-ST for the first group. The reasons for this are unclear. The study was conducted at a small unit were participants of the two groups met each other daily during the study period, so both diffusion of treatment and subject expectancy effects are likely to have occurred. The two groups (DBT-ST 1 & 2) differed from each other in some respects. The first group (DBT-ST 1) was more homogenous concerning profession and sex, and the group leader for this group was an experienced supervisor not working at the center. The second group was led by a DBT-therapist who was employed at the center and co-worker with the participants, and two from the management also took part in this group. This could have affected these participants' willingness to fully engage with experiential exercises and self-disclosure during group-sessions, making DBT-ST less meaningful for them.

Quasi-experimental designs have their advantages and disadvantages. The lack of randomization and experimental control (a common issue in this kind of research; Bennett-Levy, 2006), prevents any causal conclusions about post-intervention changes. At the same time, the setup enabled the study of a novel and potentially fertile intervention at a center with experienced staffs working with complex and high-risk patients. The study demonstrates that DBT-ST for staffs can be implemented in a real-world clinical setting, and that important aspects of mindfulness probably can be learned by staffs without engaging in programs which

lay more emphasis on formal mindfulness-meditation (i.e., Mindfulness-based stress reduction or Mindfulness-based cognitive therapy). There may be potentially life-saving benefits to be gained from this intervention through reductions in both self-injurious behavior among patients and violent incidents towards personnel. The effect sizes appear large enough to suggest that further studies should be carried out to investigate the efficacy of DBT-ST for staffs, preferrably using stronger research designs, for example the multiple baseline design (Singh et al., 2006a, 2009) or the randomized, controlled trial. Such studies could be particularly informative for mental health providers who are looking for applicable and cost-effective ways to reduce self-harm and violence at inpatient units.

References

American Psychiatric Association. (1994). *DSM-IV Diagnostic and statistical manual of mental disorders* (4th Ed.). Washington DC: American Psychiatric Association.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27-45.

Bennett-Levy, J. (2006). Therapist skills: A cognitive model of their acquisition and refinement. *Behavioural and Cognitive Psychotherapy*, 34(1), 57-78.

Bennett-Levy, J., Lee, N., Travers, K., Pohlman, S., & Hamernik, E. (2003). Cognitive therapy from the inside: Enhancing therapist skills through practicing what we preach. *Behavioural and Cognitive Psychotherapy*, 31(2), 143-158.

Bennett-Levy, J. & Thwaites, R. (2007). Self and self-reflection in the therapeutic relationship: A conceptual map and practical strategies for the training, supervision and self-supervision of interpersonal skills. In Gilbert, P. & Leahy, R. L. (Eds.), *The therapeutic relationship in the cognitive behavioral psychotherapies* (pp. 255-281). New York: Routledge/Taylor & Francis Group.

Bennett-Levy, J., Turner, F., Beaty, T., Smith, M., Paterson, B., & Farmer, S. (2001). The value of self-practice of cognitive therapy techniques and self-reflection in the training of cognitive therapists. *Behavioural and Cognitive Psychotherapy*, 29(2), 203-220.

Block-Lerner, J., Adair, C., Plumb, J. C., Rhatigan, D. L., & Orsillo, S. M. (2007). The case for mindfulness-based approaches in the cultivation of empathy: Does nonjudgmental, present-moment awareness increase capacity for perspective-taking and empathic concern? *Journal of Marital and Family Therapy*, 33(4), 501-516.

Borckardt, J. J., Nash, M. R., Murphy, M. D., Moore, M., Shaw, D., & O'Neil, P. (2008). Clinical practice as natural laboratory for psychotherapy research: A guide to case-based time-series analysis. *American Psychologist*, 63(2), 77-95.

Bruce, N. G., Manber, R., Shapiro, S. L., & Constantino, M. J. (2010). Psychotherapist mindfulness and the psychotherapy process. *Psychotherapy: Theory, Research, Practice, Training*, 47(1), 83-97.

Chiesa, A. & Malinowski, P. (2011). Mindfulness-based approaches: Are they all the same? *Journal of Clinical Psychology*, 67(4), 404-424.

Chiesa, A. & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *The Journal of Alternative and Complementary Medicine*, 15(5), 593-600.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. S*econd Edition*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.

Didonna, F. (2009). Mindfulness-based interventions in an inpatient setting. In Didonna (Ed.), *Clinical handbook of mindfulness* (pp. 447-462). New York: Springer Science.

Escuriex, B. F. & Labbé, E. E. (2011). Health care providers' mindfulness and treatment outcomes: A critical review of the research literature. *Mindfulness*, 2(4), 242-253.

Eskin, M., & Parr D. (1996). *Introducing a Swedish version of an instrument measuring*

mental stress (Reports from the Department of Psychology, nr 813) Stockholm: Stockholm University, Department of Psychology.

Fagin, L. (2004). Management of personality disorders in acute in-patient settings. Part 1: Borderline personality disorders. *Advances in Psychiatric Treatment*, 10, 93-99.

Grepmair, L., Mitterlehner, F., Loew, T., Bachler, E., Rother, W., & Nickel, M. (2007). Promoting mindfulness in psychotherapists in training influences the treatment results of their patients: A randomized, double-blind, controlled study. *Psychotherapy and Psychosomatics*, 76(6), 332-338.

Harley, R. M., Baity, M. R., Blais, M. A., & Jacobo, M. C. (2007). Use of dialectical behavior therapy skills training for borderline personality disorder in a naturalistic setting. *Psychotherapy Research*, 17(3), 362-370.

Hoffman, P.D., Fruzzetti, A. E., & Swenson, C. R. (1999). Dialectical behavior therapy – Family skills training. *Family Process*, 38(4), 399-414.

Irving, J.A., Dobkin, P.L., & Park, J. (2009). Cultivating mindfulness in health care professionals: A review of empirical studies of mindfulness-based stress reduction (MBSR). *Complementary Therapies in Clinical Practice*, 15, 61–66.

Kazdin, A. E. (2009). *Research design in clinical psychology* (international edition of the 4th edition). Boston: Pearson Education (US).

Laireiter, A-R. & Willutzki, U. (2003). Self-reflection and self-practice in training of cognitive behaviour therapy: An overview. *Clinical Psychology & Psychotherapy*, 10(1), 19-30.

Lilja, J. L., Frodi-Lundgren, A., Hanse, J. J., Josefsson, T., Lundh, L-G., Sköld, C, Hansen, E., & Broberg, A. G. (2011). Five facets mindfulness questionnaire – reliability and factor structure: A Swedish version. *Cognitive Behaviour Therapy*, 40(4), 291-303.

Linehan, M. M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.

Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder*. New York: Guilford Press.

Nakagawa, S. & Cuthill, I. (2007). Effect size, confidence interval and statistical significance: a practical guide for biologists. *Biological Reviews*. 82(4), 591-605.

Norcross, J. C. (2005). The psychotherapist's own psychotherapy: Educating and developing psychologists. *American Psychologist*, 60(8), 840-850.

Orlinsky, D. E., Schofield, M. J., Schroder, T., & Kazantzis, N. (2011). Utilization of personal therapy by psychotherapists: A practice-friendly review and a new study. *Journal of Clinical Psychology*, 67(8), 828-842.

Rimes, K. A. & Wingrove, J. (2011). Pilot study of mindfulness-based cognitive therapy for trainee clinical psychologists. *Behavioural and Cognitive Psychotherapy*, 39(2), 235-241.

Rizq, R. (2011). Personal therapy in psychotherapeutic training: Current research and future directions. *Journal of Contemporary Psychotherapy*, 41(3), 175-185.

Rizvi, S. L., Welch, S. S., & Dimidjian, S. (2009). Mindfulness and borderline personality disorder. In Didonna, F. (Ed), *Clinical handbook of mindfulness* (pp. 245-257). New York: Springer Science.

Sakdalan, J. A., Shaw, J., & Collier, V. (2010). Staying in the here-and-now: A pilot study on the use of dialectical behaviour therapy group skills training for forensic clients with intellectual disability. *Journal of Intellectual Disability Research*, 54(6), 568-572.

Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, 12(2), 164-176.

Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology*, 1(2), 105-115.

Sheikh, A. I., Milne, D. L., & MacGregor, B. V. (2007). A model of personal professional development in the systematic training of clinical psychologists. *Clinical Psychology and Psychotherapy*, 14(4), 278–287.

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Singh, A. N., Adkins, A. D., & Singh, J. (2009). Mindful staff can reduce the use of physical restraints when providing care to individuals with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities*, 22(2), 194–202.

Singh, N. N., Singh, A. N., Lancioni, G. E., Singh, J., Winton, A. S. W., & Adkins, A. D. (2010). Mindfulness training for parents and their children with ADHD increases the children's compliance. *Journal of Child and Family Studies*, 19(2), 157-166.

Singh, N. N., Lancioni, G. E., Winton, A. S. W.; Curtis, W. J., Wahler, R. G., Sabaawi, M. ... McAleavey, K. (2006a). Mindful staff increase learning and reduce aggression in adults with developmental disabilities. *Research in Developmental Disabilities*, 27(5), 545-558.

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Fisher, B. C., Wahler, R. G., McAleavey, K., et al. (2006b). Mindful parenting decreases aggression, noncompliance, and self-injury in children with autism. Journal of Emotional and Behavioral Disorders, 14, 169–177.

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Singh, J., Curtis, J. W., Wahler, R. G., et al. (2007). Mindful parenting decreases aggression and increases social behavior in children with profound developmental disabilities. Behavior Modification, 31(6), 749–771.

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Wahler, R. G., Singh, J., & Sage, M. (2004). Mindful caregiving increases happiness among individuals with multiple disabilities. Research in Developmental Disabilities, 25, 207–218.

Singh, N. N., Singh, S.D., Sabaawi, M., Myers, R. E., & Wahler, R. G. (2006c). Enhancing treatment team process through mindfulness-based mentoring in an inpatient psychiatric hospital. *Behavior Modification*, 30(4), 423-441.

Söderberg, P., Tungström, S., & Armelius, B. Å. (2005). Reliability of global assessment of functioning ratings made by clinical psychiatric staff. *Psychiatric Services*, 56(4), 434-438.

Soler, J., Pascual, J. C., Tiana, T., Cebrià, A. Barrachina, J., Campins, M. J. ... Pérez, V. (2009). Dialectical behaviour therapy skills training compared to standard group therapy in borderline personality disorder: A 3-month randomised controlled clinical trial. *Behaviour Research and Therapy*, 47(5), 353-358.

Sonesson, O., Tjus, T., & Arvidsson, H. (2010). Reliability of a functioning scale (GAF) among psychiatric ward staff. *Nordic Psychology*, 62(1), 53-64.

Swenson, C.R., Sanderson, C., Dulit, R. A., & Linehan, M. M. (2001). The application of dialectical behavior therapy for patients with borderline personality disorder on inpatient units. *Psychiatric Quarterly*, 72(4), 307-324.

Wachs, Karen; Cordova, James V. (2007). Mindful relating: Exploring mindfulness and emotion repertoires in intimate relationships. *Journal of Marital and Family Therapy*, 33(4), 464-481.

Wännström, I., Peterson, U., Åsberg, M., Nygren, Å., & Gustavsson, J. P. (2009). Psychometric properties of scales in the General Nordic questionnaire for psychological and social factors at work (QPSNordic): Confirmatory factor analysis and prediction of certified long-term sickness absence. *Scandinavian Journal of Psychology*, 50(3), 231-244.