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Preventing Empathic Distress and Social Stressors at Work Through Nonviolent Communication Training: A Field Study With Health Professionals

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One major source of mental health problems in health professionals are personally demanding encounters at work. Thus, a crucial prevention focus is the development of emotional and social skills necessary to effectively manage interactions with clients, colleagues, and supervisors. The aim of our pre-post intervention field study was to evaluate an employee training in nonviolent communication (NVC) within a public health organization. A training group participated in a 3-day NVC training and completed questionnaires before and 3 months after training. Changes in NVC skills, empathic distress, empathy, and social stressors at work were compared with data from a control group without training. Additionally, we observed NVC-trained participants' communication behavior immediately before and after the intervention. We found a promotion of communication skills in training participants as evidenced by increased emotion verbalization behavior and enhanced use of NVC at work. Empathic distress declined, and an increase of social stressors at work was prevented by enhanced emotion verbalization. The findings demonstrate that NVC training can be an effective means to foster emotional and interpersonal skills and to prevent empathic distress and social stressors at work in individuals working in socioemotionally challenging settings. Possible causal mechanisms explaining the training effects are discussed.

Keywords: nonviolent communication, empathic distress, emotional labor, social stressors at work, prevention

The prevention of socioemotional stressors in employees represents a key challenge for health institutions, because a stressed staff is more likely to be affected by mental health problems, absenteeism, and turnover (e.g., Dormann & Zapf, 2004; Michie & Williams, 2003; Tyssen, Vaglum, Gronvold, & Ekeberg, 2000; Wright & Cropanzano, 1998). This holds true not only for the health sector but for all other fields involving "people work," as they generally demand the skillful and professional handling of emotionally difficult encounters and interpersonal conflicts with interaction partners at work. In this article, we present an empirical evaluation of an employee training in nonviolent communication (NVC; Rosenberg, 2005), which aimed at enhancing interpersonal skills and preventing empathic distress and social stressors at work among health professionals.

Emotional Labor in Health Professionals: Empathic Distress

Interactions with clients constitute one major source of work strain (Dormann & Zapf, 2004; Grandey, 2000; Zapf, Seifert, Schmutte, Mertini, & Holz, 2001). Especially in health care settings, dealing with illness and suffering represents a central psychological demand of employees' daily work, because job stressors such as emotional pressure and patient demands (instead of more objective factors, e.g., high workload, on call sleeping hours) prove to be major predictors of mental health problems (Tyssen et al., 2000). In terms of emotional labor (Hochschild, 1983), showing compassion and avoiding expressions of negative feelings toward clients are essential job role expectations in health care (Diefendorff, Erickson, Grandey, & Dahling, 2011; Larson & Yao, 2005).

General models of emotional labor (Grandey, 2000; Hülsheger & Schewe, 2011) identify two possible emotion regulation strategies in professional interactions with clients. Deep acting refers to the internal modification of feelings and a genuine display of expected emotions, whereas surface acting is limited to the fake expression of role-consistent emotions without internal experience of corresponding feelings. While health professionals are expected

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to show empathy, the suffering of others can evoke an immediate reactive emotion that strongly contradicts this professional role. This response is referred to as empathic distress, a "self-focused, aversive, affective reaction to the apprehension of another's emotion" (Eisenberg, 2000, p. 672). It is a form of empathic overarousal that results from poor emotion regulation and lessened self-other distinction (Decety & Lamm, 2009; Eisenberg et al., 1994). Accompanying feelings are discomfort, tension, and anxiety, which promote egoistically motivated withdrawal from others in need (Batson, Fultz, & Schoenrade, 1987). Although Davis (1983) originally conceptualized it as a subcomponent of empathy, more recent empirical work strongly supports the assumption that empathic distress represents a distinct construct (Cliffordson, 2002; Hawk et al., 2013; Pulos, Elison, & Lennon, 2004) which clearly contrasts with empathic concern and compassion (Klimecki & Singer, 2012). Larson and Yao's (2005) emotional labor model of clinical empathy thus considers the internal regulation of empathic distress as crucial for health professionals' deep acting, and as a mediating factor of job burnout, one of the ultimate outcomes of clinical empathy. Based on the findings of a range of neuroscientific experiments, Klimecki and Singer (2012) similarly argue that burnout in caregivers is related to empathic distress fatigue. Indeed, in a previous study with Salvation Army officers, empathic distress was found to predict emotional exhaustion (Gross, 1994), which is the central aspect of job burnout (Maslach, Schaufeli, & Leiter, 2001).

Managing Relationships With Colleagues and Supervisors: Social Stressors at Work

While supporting social relationships and a nurturing emotional climate within work groups can buffer health care professionals' strain due to emotional labor with patients (Grandey, Foo, Groth, & Goodwin, 2012), negative relationships and conflictual interactions with colleagues and supervisors can contribute to work-related psychological strain and cause depressive symptoms in employees (Dormann & Zapf, 2002). As pointed out by Frese and Zapf (1987), social stressors at work do not simply correspond to a lack of social support but are conceptualized as aversive social experiences and relationships with coworkers and supervisors, such as interpersonal conflicts and animosities, disharmonious interactions, and a negative work team climate. Diary studies revealed that employees report to be involved in interpersonal conflicts at work on half of the days (Hahn, 2000), and that social conflicts directly affect daily mood, accounting for 80% of its variance (Bolger, DeLongis, Kessler, & Schilling, 1989). Similarly, Bruk-Lee and Spector (2006) found that employees who had more interpersonal conflicts at work also experienced more negative job-related emotions. Social stressors at work seem to interfere with employees' weekend recovery, as they are negatively related to psychological detachment and sleep quality (Pereira & Elfering, 2014). In addition, social stressors at work have a long-term negative impact on employees' mental and physical health, as shown by longitudinal investigations (Berset, Semmer, Elfering, Jacobshagen, & Meier, 2011; Dormann & Zapf, 2002).

Nonviolent Communication

NVC is an approach aimed at handling socioemotionally demanding situations (Rosenberg, 2005; Lee, Kessler, Varon, Martinowitz, Heim, Rosenberg, & Molho, 1998). The basic assumption of NVC is that individual emotional discomfort and relational conflict resulting from stressful interactions can be prevented through a certain style of communication. More precisely, NVC entails (a) the communication of non-evaluative observations, (b) the expression of feelings and needs, (c) clear requests, as well as (d) empathic listening to dialogue partners. According to Rosenberg (2005), speakers should start potentially conflictual dialogues with specific descriptions of an observed behavior or event, while associated personal evaluations or subjective judgments should be left out to avoid perceptions of criticism and defensive reactions in dialogue partners. A subsequent step in the communication process is the expression of one's own feelings and (unmet) needs related to this observation. Such verbalization behavior requires emotional self-awareness (i.e., identification of inner affective states) on the one hand, and the knowledge and vocabulary of differentiated feelings and underlying needs on the other. Finally, clear requests specifying the concrete behavior that is supposed to fulfill those needs should be addressed toward the dialogue partner in a non-demanding way. When being in the role of the listener, NVC involves empathically receiving the observations, feelings, needs, and requests that are implicitly or explicitly communicated by others. Rosenberg (2005) refers to it as "a respectful understanding of what others are experiencing" (p. 91), and assumes that practicing this listening style fosters empathy between dialogue partners.

Previous studies in prisoners and parolees evaluated the effects of NVC training on empathy, self-compassion, and communication skills (Marlow et al., 2012; Suarez, Lee, Rowe, Gomez, Murowchick, & Linn, 2014). A case study investigated the value of NVC in student online coaching and mentoring (Cox & Dannahy, 2005). Moreover, Nosek (2012) reports some anecdotal narratives on the use of NVC by nursing students. All these findings support the idea that NVC is effective in promoting interpersonal skills and relationship quality. However, given that the available studies are few in number, heterogeneous, and methodologically limited, more research is needed to evaluate NVC based interventions.

Present Study

We suggest that interpersonal and communication skills represent a promising scope for a secondary prevention intervention designed to target health professionals' regulation of empathic distress in emotional labor with patients, as well as their management of social stressors resulting from relationships with colleagues and supervisors. NVC builds the rationale of behavioral interventions designed to promote communication skills and empathy in various applied contexts (Rosenberg, 2005; Lee et al., 1998). However, despite the work of nearly 500 certified NVC trainers around the globe, and the wide application of NVC trainings in fields like health care, education, and community work (Center for Nonviolent Communication, 2016), academic effectiveness studies are scarce. Thus, the purpose of our study was to investigate whether NVC training enhances communication skills and empathy, and if it has the potential to prevent empathic distress and social stressors at work. We expected that the training has a proximate learning effect as well as a transfer effect (Kirkpatrick, 1998) on communication skills. Thus, we hypothesized that NVC training will increase emotion verbalization immediately after the

training (Hypothesis 1a), as well as the later use of NVC at the workplace (Hypothesis 1b). As empathic listening is a central component of NVC, we also expected that NVC training promotes empathy (Hypothesis 2). Given that NVC entails intrapersonal emotion management (i.e., awareness, labeling, and expression of own emotions), we further hypothesized that NVC training will reduce empathic distress (Hypothesis 3). Ultimately, NVC is conceptualized as an effective means of interpersonal relationship management (i.e., non-judgemental, non-demanding and empathic interaction). Therefore, we expected NVC training to reduce social stressors at work (Hypothesis 4).

Method

We carried out a pre-post intervention study in the field setting of a public health organization in Germany. The organization has several branches with more than 600 employees, including physicians, nurses, and administrative personnel. A sample of employees who voluntarily participated in a 3 day NVC training took part in a questionnaire survey before and 3 months after the training. Pre-post changes in NVC skills, empathy, empathic distress, and social stressors at work were compared with questionnaire data collected in a control sample of employees who did not receive any intervention. In addition, we examined more proximate training effects by observing participants' emotion verbalization behavior during a group discussion immediately before and after the training. Figure 1 presents an overview of the study design and number of participants. Both study design and procedure were approved by the Ethics Committee of the Psychology Department of the Humboldt University Berlin, Germany.

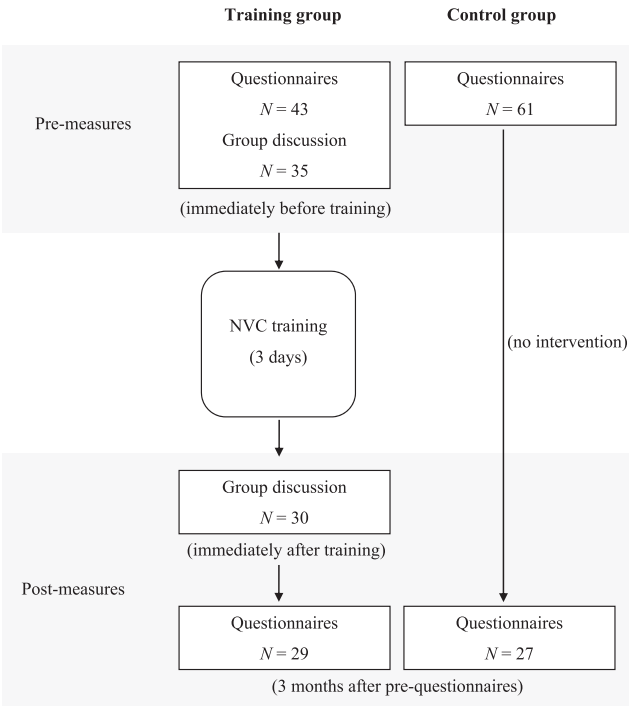

Figure 1. Study design and participants.

Participants

The organization's human resources department offered the opportunity to voluntarily participate in the NVC training via e-mail and intranet blackboard to the entire staff. At the same time, employees were informed that before and after the training participants would be invited to take part in the collection of questionnaire and video data, which would be used by the authors for scientific purposes. Random assignment of 89 interested participants to a training group (TG) and control group (CG) was not feasible because of practical and organizational constraints. Overlap in organizational unit membership across TG and CG participants had to be ruled out to avoid possible confounds through everyday personal interaction among employees during the course of the study (e.g., social learning effects). At the same time, individual scheduling preferences had to be matched with fixed training dates and limited participant numbers.

Considering these constraints, 46 of the 89 interested employees were assigned to the TG and invited to take part in our study. At the day of the training, two participants failed to appear, and one person, despite completing the training, refused to participate in the study. An additional 14 TG participants did not reply to the post-questionnaire.

The other 43 employees were assigned to the CG. As we expected relatively lower response rates in this group, we also invited 95 additional employees to the study via email. They had been invited to participate in the training but had not responded to the initial training announcement. Again, non-overlap in organizational unit membership with TG participants was considered. The pre-questionnaire was completed by 55 CG participants, and 6 other participants for whom organizational unit membership could not be established were excluded from the study. Another 28 CG participants did not respond to the post-questionnaire.

The final pre-post-analysis sample comprised 29 participants in the TG and 27 in the CG.[1] Participants' mean age was 49.2 years (SD = 7.4) in the TG, and 47.3 years (SD = 7.9) in the CG, $t(48) = .92$, $p = .36$. The high percentage of female participants (TG: 85%; CG: 89%; $\chi^2[1] = .17$, $p = .69$) represented the organization's personnel structure (82% female employees). Participants' average organizational tenure amounted to 12.22 years (SD = 9.30) in the TG, and 10.10 years (SD = 8.10) in the CG, $t(50) = .90$, $p = .37$. Groups were not equivalent with respect to educational level. TG participants had more years of education (M = 15.9, SD = 4.4) than CG participants (M = 12.3, SD = 3.6; $t[48.16] = 3.22$, $p < .01$).

Procedure

Intervention. The training intervention was designed and carried out by one experienced NVC trainer who had been commissioned as an external consultant by the organization. The aim of

[1] We conducted an attrition analysis. Of the total of 98 participants who provided pre-questionnaire data and were included in the analysis, 56 (57.1%) completed the study and provided post-questionnaire data. Chi-square analyses revealed that attrition levels differed marginally significant between study groups (TG: 32.6%, CG: 50.9%; $\chi^2(1) = 3.32$, $p = .07$). However, there was no significant Group (TG vs. CG) × Attrition (dropouts vs. completer) interaction effect on demographic or training outcome variables as a series of ANOVAS revealed.

the training intervention was to develop and foster NVC skills in the participants, particularly for potentially tense or conflictual interactions with clients and colleagues at work. A special focus was placed on expressing and responding to strong emotions like frustration and anger (for further details on the concept and methods of the NVC training, see Weckert, 2012). The 3 day program (7 hr of training per day) included theoretical explanations (one-third) and practical exercises (two-thirds) of the core components of NVC (non-evaluative observations, feelings and needs, clear requests, and empathic listening). Brief introductory presentations, group role plays, dyadic conversations, nonverbal communication, and self-exploration techniques were applied. During the practical parts, participants were encouraged to use real communication situations that they had experienced at work. Instructional handouts supported the exercises. The in-house-trainings were provided in three groups of 14 to 15 participants in the organization's own facilities in spring 2012.

Data collection. To assess training effects over 3 months, communication skills, empathy, and stress were assessed via self-report measures. In the TG, paper and pencil questionnaires were administered on the first day of the training before its start. In the CG, the questionnaires were provided online after acceptance of invitation to participate in the study. Three months after pre-data collection, we asked participants in both groups via e-mail to answer the same online-questionnaires again. The second data collection was announced to all participants when they received the first questionnaires.

Additionally, we examined the proximate training effect by observing the communication behavior of TG participants in a group discussion on the first day of training before it started, and on the last training day after it ended. Thirty-five participants (80%) of the TG were willing to join discussion groups, which were randomly composed of four to six persons. Five participants dropped out at post-discussion because of other obligations after the training. We chose "work assignment" as discussion topic. Based on a detailed written description of a scenario, we asked participants to picture themselves being part of a team which receives an extra high workload from their team supervisor while being understaffed. The task was to discuss this issue and decide on the individual work assignments among the team members while the group was instructed to agree on only two (in groups of up to four persons) or three (in groups of six persons) group members who would be responsible for the extra work. Topic and task were chosen because they resemble a moderately conflictual but common workplace situation for employees. Discussions lasted for on average of 8 min ($SD = 2.5$) and were terminated if they exceeded 10 min. The interactions were video-recorded on the basis of written informed consent and coded as described below.

Group Discussion

Emotion verbalization. Adding a behavioral observation measure of emotion verbalization, the frequency of verbal expressions of emotional states during group discussion was assessed by coding the videotaped interactions with the Discussion Coding System (DCS; Schermuly & Scholl, 2012). The coding procedure for the purpose of this study entails (a) the group discussion being segmented into individual statements on the basis of a set of rules defining when a new statement is coded (e.g., when speakers change, or when they address a new person), and (2) the communicative function of each statement being coded with regard to the verbalization of positive or negative emotions. Emotional statements are specified as messages by which speakers express their own positive or negative feelings explicitly, for example, "I am satisfied/content/glad/happy" or "I feel disappointed/irritated/distressed/under pressure" (Schermuly & Scholl, 2012). Frequency was calculated as the sum of the person's emotional statements divided by the sum of the person's total statements. Coding of communicative function based on the DCS categories proved to have a strong interrater agreement throughout various studies (Cohen's κ ranging from .72 to .91; Schermuly & Scholl, 2012).

Data analysis. To assess whether NVC training had a proximate effect on emotion verbalization, we analyzed pre- to post-training changes in the frequency of verbal expressions of emotional states during group discussion in the TG. We conducted separate analyses for changes in frequency of expressions of positive and negative emotional states by performing Wilcoxon signed-ranks test, as the assumption of normal distribution was not met.

Questionnaires

Nonviolent communication. As, to the best of our knowledge, no published comprehensive measure of NVC as conceptualized by Rosenberg (2005) exists, we used a self-developed 18-item scale that represents the four core components of NVC, that is, (a) observing without evaluating (e.g., "I describe my perception to my dialogue partner without evaluating [positively or negatively]."), (b) expressing feelings and needs (e.g., "I find it easy to tell my dialogue partner about my feelings."), (c) clear requesting (e.g., "When I ask my dialogue partner for something, I express myself as clearly as possible to avoid misunderstandings."), and (4) empathic listening (e.g., "I can understand my dialogue partner's feelings, even if he expresses them indirectly."). Reliability of the scale was $\alpha = .91$. Further information regarding scale development can be found in the Appendix.

Cognitive and emotional empathy. Trait empathy was assessed by two subscales (four items each) of Paulus' (2009) "Saarbrücker Persönlichkeitsfragebogen (SPF)," which is a German variant of the Interpersonal Reactivity Index (Davis, 1983). The perspective taking subscale measures the understanding of another person's psychological point of view (e.g., "I try to look at everybody's side of a disagreement before I make a decision"), and thus, represents cognitive empathy. The empathic concern subscale focuses on feelings of warmth and sympathy for unfortunate others (e.g., "I have tender, concerned feelings for people less fortunate than me"), and thus, represents affective empathy. Internal consistency was $\alpha = .80$ (perspective taking) and $\alpha = .64$ (empathic concern). We chose these subscales as the most established self-report empathy measures, and because they, despite representing a trait-based measure, have been successfully used in similar studies to examine intrapersonal change over short time periods (e.g., 8 weeks; Birnie, Speca, & Carlson, 2010).

Empathic distress. Empathic distress, that is, self-oriented feelings of discomfort and anxiety that emerge when apprehending another's emotion, was measured by the corresponding SPF personal distress subscale (four items, $\alpha = .76$; e.g., "Being in a tense emotional situation scares me," "In emergency situations, I feel apprehensive and ill-at-ease").

Social stressors at work. Intensity of social stressors was assessed using a 10-item scale developed by Frese and Zapf (1987). The scale focuses on animosities and conflicts with colleagues and supervisors, and a negative social climate at the workplace (e.g., "One's hash is settled even for minor matters," "My supervisor pushes all the time," and "I have to work together with people who do not understand fun"). The internal consistency was $\alpha = .88$. All questionnaire items were answered on five-point rating scales ranging from 0 = *not at all true* to 4 = *completely true*.

Data analysis. We separately conducted 2 × 2 repeated-measures analysis of covariances (ANCOVAs) with Group (TG vs. CG) as between-subjects factor and Time (pre vs. post) as within-subject factor. Years of education were included as a covariate in each model, since TG and CG were not equivalent in terms of educational level.

Results

Proximate Effect of NVC Training on Emotion Verbalization

Means and standard deviations for emotion verbalization during group discussion are presented in Table 1. The frequency of negative emotional state expressions significantly increased ($z = -3.39$, $p < .001$, $r = -0.62$), while the frequency of statements containing positive emotional states did not change significantly ($z = -.98$, $p = .33$, $r = -0.18$). Thus, the training specifically increased the capability to verbally convey negative emotions to communication partners during a conflictual group discussion (Hypothesis 1a).

Table 2 provides an overview of means and standard deviations of training outcomes in TG and CG over 3 months.

Effect of NVC Training on NVC Skills Over 3 Months

The ANCOVA of changes in NVC skills yielded a significant interaction effect, $F(1, 48) = 4.66$, $p < .05$, $\eta_p^2 = .09$, 90% confidence interval (CI) [.003, .227]. Bonferroni-corrected post hoc comparisons further revealed a significant increase in the TG ($M_{pre} = 2.14$, $M_{post} = 2.33$, $p < .05$), while mean scores in the CG did not change significantly ($M_{pre} = 2.51$, $M_{post} = 2.43$, $p = .38$), supporting our assumption that NVC training increases NVC skills (Hypothesis 1b).

Effects of NVC Training on Cognitive and Emotional Empathy Over 3 Months

We conducted two separate analyses to examine changes in cognitive and emotional empathy. For perspective taking the ANCOVA interaction effect failed to reach statistical significance, $F(1, 49) = 1.76$, $p = .19$, $\eta_p^2 = .04$, 95% CI [.000, .148]. Furthermore, no significant interaction effect resulted for empathic concern, $F(1, 49) = 0.18$, $p = .67$, $\eta_p^2 = .004$, 95% CI [.000, .073]. Taken together, there was no conclusive evidence for our hypothesis that NVC training promotes cognitive and emotional trait empathy as measured via self-report questionnaire (Hypothesis 2).

Table 1
Means and SDs of Immediate Outcomes in the Training Group

Outcome	*M* (*SD*) pre/post
Emotion verbalization in % (negative states)	2.80 (9.64)/10.51 (13.16)
Emotion verbalization in % (positive states)	.88 (3.23)/1.53 (3.32)

Note. $N = 30$.

Table 2
Means and SDs of Outcomes in the Training Group and Control Group Over 3 Months

Outcome	*M* (*SD*)	
	TG ($N = 29$) pre/post	CG ($N = 27$) pre/post
Nonviolent communication	2.09 (.47)/2.32 (.43)	2.54 (.51)/2.45 (.55)
Perspective taking	2.50 (.66)/2.60 (.57)	2.69 (.72)/2.71 (.81)
Empathic concern	2.74 (.61)/2.60 (.58)	2.72 (.55)/2.61 (.64)
Empathic distress	2.04 (.81)/1.70 (.72)	1.44 (.91)/1.49 (.89)
Social stressors at work	1.05 (.68)/.97 (.71)	.70 (.54)/.93 (.75)

Note. TG = training group; CG = control group.

Effects of NVC Training on Empathic Distress and Social Stressors at Work Over 3 Months

Training effects on empathic distress and social stressors at work were analyzed separately. The ANCOVA yielded a significant interaction effect for empathic distress, $F(1, 49) = 4.71$, $p < .05$, $\eta_p^2 = .09$, 95% CI [.003, .225]. In Bonferroni-corrected post hoc analyses we found a significant decrease in the TG ($M_{pre} = 2.25$, $M_{post} = 1.90$, $p < .01$), but no significant change in the CG ($M_{pre} = 1.26$, $M_{post} = 1.32$, $p = .64$). A different pattern resulted regarding changes in social stressors: The marginally significant interaction effect ($F(1, 47) = 3.56$, $p < .10$, $\eta_p^2 = .07$, 95% CI [.000, .205]) was based upon the increase in the CG ($M_{pre} = 0.64$, $M_{post} = 0.92$, $p < .05$), and a stable level of social stressors in the TG ($M_{pre} = 1.06$, $M_{post} = 1.02$, $p = .71$) as Bonferroni-corrected post hoc comparisons revealed. In summary, these results support the assumption that NVC training reduces empathic distress (Hypothesis 3). NVC training, however, did not decrease social stressors at work as expected (Hypothesis 4), but prevented its increase instead.

Training Intention Analysis Within the CG

We analyzed possible training intention effects within the CG. Nine participants (33%) reported that they had responded to the initial training announcement, while 17 participants (63%) indicated that they had not. One participant did not answer that question. These two CG subgroups did not differ in age, $t(22) = -.70$, $p = .49$, educational level, $t[11.92] = -1.74$, $p = .11$, tenure, $t(24) = .80$, $p = .43$, and gender ratio, $\chi^2[1] = .19$, $p = .67$. However, given that varying levels of the intention to participate in the training may differently affect changes over time, we conducted a series of 2 × 2 repeated-measures ANOVAS with CG Subgroup ($CG_{responder}$ vs. $CG_{nonresponder}$) as between-subjects factor and Time (pre vs. post) as within-subject factor. No Group × Time interaction effect resulted for any training outcome

variable, indicating that patterns of changes among CG participants were actually independent of their initial intention to take part in the NVC training.

Mechanism of Preventing Social Stressors at Work Through Proximate NVC Training Effect on Emotion Verbalization

To explore whether the proximate training outcome, as measured through discussion analyses, was associated with training outcomes over 3 months, we first created variables quantifying change for all outcome variables (M_{post} - M_{pre}). We then separately regressed variables representing change over 3 months on change in verbalization of negative emotions in the TG only. As 9 of 30 group discussion participants had not fully completed the post-questionnaire, the following results are based on $N = 21$. Analyses identified increase in emotion verbalization during group discussion as a significant negative predictor ($B = -.48$, $p < .05$) of increase in social stressors at work, with 23% variance explained, $R^2 = .23$, $F(1, 19) = 5.64$, $p < .05$. Thus, prevention of an increase in social stressors at work through NVC training seems to in part rely on the enhanced capability to express negative emotions to interaction partners. There were no further significant relationships with changes in the other outcome variables.

Discussion

The aim of our study was to examine the effectiveness of a training in NVC (Rosenberg, 2005) in employees of a public health organization. NVC includes the communication of non-evaluative observations, expressions of feelings and needs, clear requests among dialogue partners, and empathic listening. We found that the 3-day intervention promotes communication skills as evidenced by an increase in verbalization of negative emotions during a conflictual group discussion, as well as enhanced NVC skills in everyday communication at work 3 months after the training. Furthermore, participants showed a decline in empathic distress, while the increase of social stressors at work was prevented by an enhanced capability to verbalize negative emotions during a group discussion. There was no conclusive evidence to assume that NVC training is beneficial in promoting cognitive and emotional trait empathy within 3 months. Overall, we conclude that NVC training is an effective means to foster emotional and interpersonal skills and to prevent empathic distress and social stressors at work in health professionals. This study demonstrates the effectiveness of a short employee training preventing psychological stressors that have been shown to cause mental health problems in health professionals. Despite the wide use of NVC based interventions in various applied fields, empirical evaluations in the workplace have been lacking so far. To our knowledge this is the first controlled NVC effectiveness study to address this research gap.

When discussing a conflictual work situation in the group, participants verbalized their negative emotions (for example, frustration or stress), more frequently after the NVC training. The verbalization of positive emotions did not increase, which is plausible because this above scenario is not likely to elicit positive affect. In addition, this proximate training effect was followed by an improvement in NVC skills employed in communication situations at work 3 months after the training. Taken together, the results support the assumption that NVC is a sustainably trainable communication skill (Rosenberg, 2005; Lee et al., 1998). While NVC is practiced by nearly 500 trainers in various applied contexts (Center for Nonviolent Communication, 2016), to date there has been little scientific evidence examining the effectiveness of this intervention approach. Our study contributes to the scarce academic publications addressing NVC and fills this gap with a controlled and quantitatively based evaluation. Drawing on Kirkpatrick's (1998) four-level training evaluation model we consider the change in observed emotion verbalization to constitute a proximate effect on the learning level ("principles, facts, and techniques understood and absorbed," p. 4), whereas increase of self-reported communication skills in work settings is interpreted as a transfer effect on the behavior level ("applying learned principles and techniques on the job," p. 5). The improvement of communication skills in our participants corresponds to a certain extent to the enhancement of NVC skills in male prisoners after NVC training (Suarez et al., 2014), and to the qualitative evidence of another study (Marlow et al., 2012), where residents of a substance abuse treatment facility for men on parole reported to have enhanced listening skills after NVC training. Because our participants represent a non-deviant sample, which was predominantly composed of women, our findings further contribute to the generalizability of NVC training effectiveness.

Besides improved communication skills we also found a decrease of empathic distress in training participants. This result supports the assumption that NVC is an effective way to manage one's own feelings that transpire in emotionally tense interactions (Rosenberg, 2005). Referring to the account of empathic distress as an aversive empathic overarousal, which results from low emotion regulation capabilities accompanied by a failure to disentangle the self from the other (Decety & Lamm, 2009; Eisenberg et al., 1994), we propose that NVC training reduces empathic distress by promoting these crucial regulation and distancing processes. Observing others' negative affective states in a non-judgemental manner and being aware of one's own feelings and needs enables health professionals to establish a psychological distance to interaction partners in emotionally charged situations, for example, when talking to suffering clients or upset colleagues. This inner distance contributes to the prevention of other-induced negative affect like discomfort and anxiety. Evidence supporting the positive effects of non-judgementality and, especially, self-awareness has been provided by mindfulness[2] literature (Brown & Ryan, 2003; Grossman, Niemann, Schmidt, & Walach, 2004; Hülsheger, Alberts, Feinholdt, & Lang, 2013). Birnie and colleagues (2010) found a reduction of empathic distress through a mindfulness based stress reduction program, concluding that mindfulness prevents observers from becoming emotionally overwhelmed by others' suffering. Further insight into the underlying brain mechanisms comes from a neuroimaging study (Creswell, Way, Eisenberger, & Lieberman, 2007), in which mindfulness was shown to be positively associated with enhanced prefrontal cortical regulation of negative affect during emotion labeling. The authors suggested that mindful labeling of negative emotions triggers a

[2] Given that aware, non-evaluative and accepting attention to present experiences is the defining characteristic of mindfulness (Brown & Ryan, 2003), it possesses strong conceptual overlap with NVC.

process of inner detachment from these affects. Similarly, we assume that awareness and expression of emotions through NVC may activate similar distress regulating mechanisms. Even if, in especially delicate situations at work, it seems inadequate to frankly express one's own negative feelings toward others, merely becoming consciously self-aware of them without judging oneself or others might help to down-regulate strong emotional states. An additional explanation of how NVC training reduces empathic distress refers to the primarily cognitive nature of empathic listening, as it includes active and attentive decoding, processing, and inferring of information about the other's inner states (Bodie, 2011; Drollinger, Comer, & Warrington, 2006; Janusik, 2007). Approaching conversations in a rather analytical mode of listening may further contribute to the regulation of negative affect in highly tense situations. At the same time, distress-promoting overlap of the self and the other becomes less likely as the other's inner state becomes rather objectified.

A further stress-related NVC training benefit was the prevention of an increase in social stressors at work. Taking into account that the effect was predicted by the proximate change in verbalization of negative emotional states toward others, this seems to be one causal mechanism in the prevention of interpersonal problems with colleagues and supervisors. How may the expression of one's own negative feelings possibly relate to the dynamics of dysfunctional social interactions? First, we argue that emotion verbalization has an important self-regulation function. As outlined above, emotional self-awareness in terms of affect labeling has shown to be associated with enhanced emotion regulation (Creswell et al., 2007). This may help soothe emotionally charged situations at an early stage. Considering that in NVC verbalized emotions are clearly self-referring (e.g., "I feel disappointed.") instead of other-referring, judgmental, or accusing (e.g., "You disappoint me."), expressing one's own affects can function as an adequate and non-provocative "cooling-off" strategy right at the beginning of potentially conflictual interactions with colleagues or supervisors. Second, we assume that emotion verbalization possesses a social integration function. Going beyond initial self-regulation, expressing one's own affective state through verbal and nonverbal displays elicits others' affective empathy (de Vignemont & Singer, 2006; Dziobek et al., 2008). As it is positively related to prosocial behavior (e.g., empathy-altruism-hypothesis; Batson et al., 1987) empathy-inducing emotion verbalization may thus strengthen cooperative tendencies in others, and may thereby prevent conflict escalation or facilitate conciliation. Finally, emotion verbalization may also function as important behavioral feedback for others because it provides rich information on the interpersonal consequences of their statements or actions. This assumption is in line with Van Kleef's (2009) Emotions as Social Information Model, according to which emotional expressions trigger inferential processes in others, which subsequently influence their behavior. For example, verbalizing disappointment may lead interaction partners to realize that their behavior did not meet certain expectations. As a consequence they may seek further information that would help them clarify others' expectations and eventually alter their behavior to rebuild a satisfactory interpersonal exchange and harmonious relationship. Clearly, this feedback function of emotion verbalization depends on the fact that—except for temporary animosities and conflicts—interaction partners have a cooperative orientation toward each other. That being said, it is possible that proximate changes in other NVC components, which we did not examine, may also have played a comparable role in preventing social stressors at work. For example, we speculate that disputes among colleagues may be hampered by the expression of clear requests to fulfill specific needs.

As perspective taking and empathic concern did not significantly increase, the assumed promotion of empathy through NVC training (Rosenberg, 2005; Lee et al., 1998) was not supported. Possibly, the intervention promotes the awareness of one's own inner states, which does not directly lead to enhanced cognitive and affective empathy for others but merely builds its basis. As studies in alexithymia (i.e., impairment in identification and description of feelings) show, emotional self-awareness is a central precondition of empathy (Grynberg, Luminet, Corneille, Grèzes, & Berthoz, 2010; Moriguchi et al., 2007). Learning to sense and express what oneself is observing, feeling, needing, and requesting through NVC can be regarded as the preceding condition before empathic reception of the same states in others can be cultivated. Therefore, we assume that during the first 3 months after training, participants place a relatively stronger emphasis on developing emotional self-awareness in communication situations, while working on their empathic listening skills take the back seat, and may have a delayed effect on their capability to empathize with others. Still, despite this possible explanation of our findings, they actually differ from the results of the study by Marlow et al. (2012), where the authors found heightened levels of self-reported emotional empathy in their participants after a NVC training. However, their study design lacked a control group leaving open whether other factors, for example, pretest sensitization, drove the results. Moreover, in addition to NVC, a substance abuse treatment was applied to the same group of individuals, and it is possible that this treatment led to the observed increase in empathy. Thus, the causal role of that study's NVC intervention on fostering empathy remains unclear. Yet, when interpreting our own results we must consider the specific nature of the empathy measure we used. The SPF (IRI) assesses trait empathy, which is a general disposition that conceptually differs from situation-specific state empathy. It is possible that a potential effect of NVC training on empathy does not generalize over a multitude of situations but is limited to specific contexts, for example, when interacting with clients and colleagues but not when talking to others in settings outside the workplace. With regard to future investigations of NVC training effectiveness, we propose to apply performance based empathy tests. For example, the photo based Multifaceted Empathy Test (MET; Dziobek et al., 2008), as well as the Movie for the Assessment of Social Cognition (MASC; Dziobek et al., 2006) allow to assess participants' objective performance scores of empathic functioning. We consider these measures to be more sensitive to intraindividual changes in affective and cognitive empathy, and thus particularly appropriate for the scope of pre-post intervention studies.

A limitation of our study is that the proximate training effect on emotion verbalization as assessed via discussion analysis was not controlled in terms of a comparison group. Unfortunately, because of organizational reasons, it was not possible to invite the CG participants to take part in separate group discussions. Therefore, we cannot rule out that the emotion verbalization increase resulted from general group climate changes after 3 days of joint training. On the other hand, our analysis showed that changes in emotion verbalization systematically predicted changes in social stressors at work. Because

a short-termed unspecific effect on the emotional climate within the training group would be unlikely to predict the reported prevention of social stressors increase at the workplace 3 months later, this relationship somehow validates the uncontrolled, yet reasonable, proximate training effect. Nevertheless, future studies should replicate this finding by including an active control group, which, ideally, receives a nonspecific communication training that shares the formal and didactical features of the NVC training. In doing so, other researchers may also be interested in investigating proximate changes in the other components of NVC, which we did not examine. This would further clarify the relative role of non-judgemental observations, clear requests, and empathic listening in the prevention of interpersonal conflict at work, thereby shedding more light on the core causal mechanisms of NVC in enhancing interpersonal functioning and preventing stressors in socioemotionally challenging fields like health care.

Finally, the NVC training as a secondary prevention intervention could be useful in combination with a primary intervention targeting psychological strain resulting from emotionally and socially challenging interactions in health professionals' work. As has been shown by Bond, Flaxman, and Bunce (2008), individuals with higher psychological flexibility (i.e., capacity for mindful, focused, goal-directed action) benefit more strongly from a primary control-enhancing redesign intervention in terms of reduction of nonspecific psychological distress. Similarly, we propose that the promotion of NVC skills could enhance the strain-reducing effects of a primary intervention aimed at, for example, changing health professionals' emotional display rules or advancing emotion regulation and acting strategies in interactions with clients.

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(*Appendix follows*)

Appendix

Development of the Nonviolent Communication Scale

As a first step in developing the Nonviolent Communication Scale, we generated a list of items that represent the core components of the construct, that is, (a) observing without evaluating, (b) expressing feelings and needs, (c) clear requesting, and (d) empathic listening. Next, we presented the item list to the professional NVC trainer who conducted the training intervention in this study. Unclear or controversial items were discussed and rephrased. The 22-item list was then administered to the initial sample of participants in the training group (TG) and control group (CG) with the instruction to "think of normal communication situations with dialog partners in the context of your work." Data of a total of $N = 104$ were collected. We performed exploratory factor analysis (principal components analysis, varimax rotation), and found the theoretically supposed four-factor structure based upon the Kaiser-Guttman criterion and the Scree test. Three items were removed because of double-loadings and one item because of low loading ($<.40$). The remaining 18 items were re-analyzed, and four factors generated with a total of 72.14% explained variance. Internal consistency of the final Nonviolent Communication Scale was $\alpha = .91$.

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