

Getting Better and Staying Better: Assessing Civility, Incivility, Distress, and Job Attitudes One Year After a Civility Intervention

Michael P. Leiter
Acadia University

Arla Day and Debra Gilin Oore
Saint Mary's University

Heather K. Spence Laschinger
University of Western Ontario

Health care providers ($n = 1,957$) in Canada participated in a project to assess an intervention to enhance workplace civility. They completed surveys before the intervention, immediately after the intervention, and one year later. Results highlighted three patterns of change over the three assessments. These data were contrasted with data from control groups, which remained constant over the study period. For workplace civility, experienced supervisor incivility, and distress, the pattern followed an Augmentation Model for the intervention groups, in which improvements continued after the end of the intervention. For work attitudes, the pattern followed a Steady State Model for the intervention group, in that they sustained their gains during intervention but did not continue to improve. For absences, the pattern reflected a Lost Momentum Model in that the gains from preintervention to postintervention were lost, as absences returned to the preintervention level at follow-up. The results are discussed in reference to conceptual and applied issues in workplace civility.

Keywords: civility, burnout, intervention, incivility, commitment

Improving the quality of social interactions at work has become an issue of increasing importance because incivility, abuse, and aggression remain frequent occurrences despite government legislation against workplace abuse and organizational policies to promote respectful workplaces (Barling, Dupré, & Kelloway, 2009; Herscovis & Barling, 2010). Addressing these workplace issues requires effective interventions that have an enduring impact on the quality of working relationships. Strategies may include both increasing the prevalence of civility as well as decreasing the incidence of incivility among employees. Moreover, any effective interventions must not only improve the quality of working relationships but also sustain these improvements over time. The current study addresses these issues by extending previous work on the CREW intervention (Civility, Respect, & Engagement in the Workplace) to decrease incivility and to increase civility

(Leiter, Laschinger, Day, & Gilin-Oore, 2011; Osatuke et al., 2009), such that we examine the sustainability of this intervention's positive effects on employee and organizational outcomes. Our central research question is whether the changes in social interactions can be self-sustaining in the absence of systematic policies to support change.

Changing and Sustaining Change in Incivility

The most critical first question regarding the efficacy of any intervention is whether it has the desired impact on target behaviors and attitudes. Once an intervention establishes improvement, research must tackle the question of whether the changes can be maintained. We propose three possible models for improvements in civility over time. First, the Lost Momentum Model assumes that the change has no internal momentum. The moment that the intervention ceases to guide and motivate the new behaviors, the behaviors will cease, leaving the system to return to its previous state. Maintaining the improvement requires the organization to continue the intervention. As soon as the organization stops putting energy into maintaining the new behavior, the previous social dynamics reassert themselves, returning the system to its previous state.

Second, in the Steady State Model, improvements attained by the end of the intervention are maintained. At an individual level, individuals create self-sustaining behaviors. At a team level, the new dynamics among the team members become self-sustaining. For example, participants' greater awareness of their behaviors' unintended consequences and the new social behaviors elicit civil responses in their workplace interactions. Team members continue to behave accordingly, sustaining the level of improvement in

Michael P. Leiter, Psychology Department, Acadia University, Wolfville, NS Canada; Arla Day and Debra Gilin Oore, Department of Psychology, Saint Mary's University, Halifax, NS Canada; Heather K. Spence Laschinger, School of Nursing, University of Western Ontario, London, Ontario, Canada.

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Correspondence concerning this article should be addressed to Michael P. Leiter, Canada Research Chair in Occupational Health, Psychology Department, Acadia University, Wolfville, NS Canada B4P 2R6. E-mail: michael.leiter@acadiau.ca

social behavior and attitudes without any additional instruction or motivation from further organizational activities.

Third, in the Augmentation Model, improvements continue even after ending the intervention. The new behaviors and insights from the intervention prompt a civility spiral (Pearson, Andersson, & Porath, 2005), in which respectful behavior prompts more of the same. The increase may be attributable to expanding the range of influence or creating social contagion (Kelly & Barsade, 2001). That is, members who had abstained from the intervention may align their behavior with the increased civility occurring in their units. It also may be attributable to a process in which individuals continue to increase the proportion of their social behavior that reflects civility while they decrease the proportion that reflects incivility.

One mechanism that could help to sustain the gains of a civility intervention in the pattern of a Steady State model is reciprocity. Balanced, reciprocal social exchanges have the capacity to maintain the quality of a social setting or even to support spirals that increase the intensity of exchanges (Pearson et al., 2005). For example, people are likely to react rudely to uncivil behavior, thereby perpetuating negative social exchanges (Lim, Cortina, & Magley, 2008). In contrast, when people experience civil, respectful behavior from others, reciprocity can contribute to building and maintaining an enjoyable work environment (Porath & Erez, 2007; Robinson & O'Leary-Kelly, 1998). The tit-for-tat quality of reciprocity appears consistent with a Steady State model, maintaining the newly established status-quo. Social climate improvements from a civility intervention that instead take on the pattern of the Augmentation model may occur through a process of emotional contagion (Kelly & Barsade, 2001). The expansionist qualities of social contagion may help establish a self-perpetuating pattern of positive exchanges to replace reciprocal negativity. Therefore, the spread of positive emotions among employees could then prompt even greater improvement over time. It is also possible that a more profound improvement may occur if employees developed genuine empathy for one another. An increased capacity for emotional perception and perspective taking could have an expanding influence on the workgroup's social interactions (Coplan, 2011; Leiter, in press).

Civility, Respect, and Engagement in the Workplace (CREW)

The CREW intervention is an organizational intervention that specifically targets workplace civility, and it was first developed and used in Veterans Hospital Administration (VHA) settings (Osatuke et al., 2009). Employees participated in a 6-month process working with facilitators to increase the frequency and quality of civil interactions among employees on their work units. The approach varied according to salient issues for the units involved. All units identified specific areas of working relationships to be addressed, developed a plan of action, and ultimately evaluated their effectiveness (Osatuke et al., 2009). The initial goal of the intervention (i.e., improving civility along with associated attitudes) has been demonstrated in two studies (Leiter et al., 2011; Osatuke et al., 2009), in which CREW was shown to increase civility (Osatuke et al., 2009), as well as to improve job attitudes and decrease incivility, distress, and absences (Leiter et al., 2011).

Accordingly, the next objective is to examine whether these improvements can be sustained after the intervention process ends. We are extending the results of the Leiter et al. (2011) study to examine a follow-up assessment one year after completing the intervention.

Hypotheses

The primary goal of this study is to build on previous work to examine whether change can be sustained over a 1-year period after the completion of an incivility intervention (i.e., CREW). Our analysis strategy examined change over the three assessments to determine whether the three-point slope for the intervention groups differed from that of the contrast groups. We expect that the CREW intervention will be associated with greater improvements than the contrast groups over time.

Hypotheses 1: Compared with participants in the contrast group (who have not received the CREW program), participants in units who have completed the CREW training program will report greater increases in the following constructs within their unit when examining the three assessments (pre-intervention, postintervention (12 months later), and 1-year follow-up (24 months later): (a) Civility; (b) Experienced Coworker Incivility; (c) Experienced Supervisor Incivility; (d) Instigated Incivility; (e) Distress; (f) Job Attitudes; and (g) Absences.

The most explicit target of the CREW intervention is improving civility (Osatuke et al., 2009), and we expect its improvement to be sustained a 1-year follow-up. We expect that increased civility would be associated with decreased incivility in its various forms. A sustained impact of the intervention would be reflected in diminished incivility at the follow-up assessment for the CREW groups only. Because of the association of civility with burnout (Leiter & Maslach, 1988) and other forms of workplace distress (Cortina, Magley, Williams, & Langhout, 2001), we expect that the CREW intervention would be associated with less distress at follow-up. Because of the association of civility with job satisfaction and other work attitudes (Chiaburu & Harrison, 2008), we expect the CREW intervention to be associated with higher scores on work attitudes. In addition to changing employees' social behavior and emotional/cognitive connection with work, we expect CREW to have a positive impact on employees' withdrawal behavior, as measured by absences (Cortina et al., 2001).

We propose that these constructs will improve for workers in CREW units in line with the Augmentation model. That is, we expect a significant linear interaction between time and intervention in which CREW groups will show significant and continuing improvements from Time 1 to Time 3, whereas the contrast groups will show less improvement across time. A competing hypothesis is that CREW units will improve in line with the Steady State model. In this case, there would be a significant quadratic interaction between time and intervention in which the pattern for the CREW groups is curvilinear (i.e., increasing and plateauing), whereas the contrast groups will show less improvement. Both hypotheses would be refuted by a Lost Momentum pattern with a quadratic interaction, showing no significant net improvement for the CREW group from Time 1 to Time 3.

Method

Participants

At Time 1, 957 health care workers in three district health authorities in Nova Scotia and two hospitals in Ontario completed a survey ($n = 262$ in the intervention units and $n = 695$ in the contrast units). Participants were predominantly female ($n = 813$, 86.7%; male: $n = 125$, 13.3%, 19 not responding), with an average age of 42.78 years ($SD = 9.97$). Their employment status varied, including full-time ($n = 676$, 71.5%), part-time ($n = 187$, 19.8%), casual ($n = 76$, 8.0%), and temporary ($n = 6$, 0.6%) employment with 12 not responding.¹ The occupational categories with the highest representation at Time 1 included RNs ($n = 492$, 53.9%), RPNs ($n = 59$, 6.5%), Ward Clerks ($n = 40$, 4.4%), Physicians ($n = 40$, 4.4%), and Unit Clerks ($n = 25$, 2.7%). When comparing our registered nurse sample with a national sample (CIHI, 2010), our sample was 95.1% female compared with 93.8% female in the national survey ($\chi^2_{(1)} = 1.61$, $p = .204$). Our sample worked 60% full-time, 32% part-time, and 8% casual in contrast to the national survey at 58.7% full-time, 30.6% part-time, and 10.7% casual ($\chi^2_{(2)} = 0.718$, $p = .698$). The average size of a CREW unit was 32.75 participants ($SD = 17.77$), and for contrast units the mean was 26.73 ($SD = 19.12$).

At Time 2, 680 health care workers completed the survey ($n = 181$ in intervention units; $n = 499$ in contrast units). Participant characteristics were highly similar to the sample at Time 1: 88% female, with an average age of 42.87 years ($SD = 9.97$), 72.1% full-time status, 52.9% were RNs, and had a similar distribution of time in their current occupations. At Time 3, 643 health care workers completed the survey ($n = 196$ in intervention units; $n = 447$ in contrast units). Again participant characteristics mirrored the Time 1 sample: 88.3% female, 41.67 years old on average ($SD = 11.14$), 71.7% full-time status, 54.9% were RNs, and had a similar distribution of time in their current occupations. Employees who described their position as temporary (Time 1, $n = 6$; Time 2, $n = 9$; Time 3 = 6) were dropped from further analysis.

The sample included 210 participants matched across all three assessments. From Time 1 to Time 2 the sample had 447 matched participants. From Time 2 to Time 3 the sample had 338 matched participants.

Procedure: CREW Intervention

Participants completed surveys at three times: (1) Survey #1 was completed before the intervention; (2) Survey #2 was completed after the units had concluded their intervention (i.e., 12 months after Survey #1); and (3) Survey #3 was completed 24 months after survey 1 (i.e., 12 months after survey #2). Participants in the intervention units ($n = 8$) completed the 6-month CREW in the first year. There were six units that participated in CREW during Year 2; we excluded them from this analysis to ensure that the contrast units ($n = 27$) had no CREW experience.

Measures

Participants responded to several standardized scales and questions about their demographic and job information. They also completed several validated scales pertaining to the hypothesized

conceptual outcome groupings: (1) civility & respect, (2) incivility, (3) work attitudes, and (4) distress.²

Civility & respect. Civility and respect were measured using two independent, validated scales: The CREW Civility Scale (Metterko, Osatuke, Mohr, Warren, & Dyrenforth, 2007) and the *Esteem Reward* section of the Effort-Reward Imbalance Questionnaire (Siegrist et al., 2004).

Incivility. Incivility was measured from one's supervisor and colleagues from the Workplace Incivility Scale (Cortina et al., 2001).

Distress. Distress was measured using burnout (MBI-GS; Maslach, Jackson, & Leiter, 1996; Schaufeli, Leiter, Maslach & Jackson, 1996), turnover intentions (Kelloway, Gottlieb, & Barham, 1999), and physical symptoms of stress (Leiter, 2005).

Attitudes. Several attitudes were measured, including trust (Cook & Wall, 1980), organizational commitment (Allen & Meyer, 1990), job satisfaction (Hackman & Oldham, 1975), and professional efficacy from the Maslach Burnout Inventory-General Scale (MBI-GS; Schaufeli et al., 1996).

The two following measures were not included in the Leiter et al. (2011) study.

Physical symptoms of stress. Physical symptoms of stress were measured by a subscale of the Personal Risk Scale (Leiter, 2005). Using a seven-point scale (0 = *Never*; 6 = *Daily*), respondents rated the frequency with which they experienced five risks: back strain, headaches, repetitive strain injuries, gastro-intestinal discomfort, sleep disturbances. The internal reliability was good across all three surveys: $\alpha = .79$ at Time 1; $\alpha = .79$ at Time 2; $\alpha = .76$ at Time 3.

Control. Control was measured using the Areas of Worklife Scale (AWS; Leiter & Maslach, 2004). The items are worded as statements of perceived congruence or incongruence between oneself and the job. All items (e.g., "I have control over how I do my work") are rated on a five-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. In the current study, the internal consistency was: $\alpha = .81$ at all three time points.

Results

Data Analysis Strategy

We tested hypotheses with three-level hierarchical linear modeling (time within employee within work unit) using *HLM 6.0* (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). At level 1, time was entered as a predictor. Time 1 was coded as -1 , Time 2 was coded as 0 , and Time 3 was coded as $+1$. Because there were three measurement occasions, this analysis represents a linear growth curve with random slopes and intercepts. A quadratic growth curve with random slopes could not be estimated because it requires at least four measurement occasions (Mroczek & Griffin, 2007). To probe nonlinear effects, quadratic models with fixed slopes were tested. This approach provides an additional degree of freedom—thus allowing the analysis to be computed—but also assumes that the relationship between variables does not vary

¹ Although we can't directly compare health-care workers who participated with those who did not, the demographics of our sample are comparable to the norm for hospital employees in Canada.

² Please see Author, 2011, for more information on these measures.

across Level 3 work units. Adding additional degrees of freedom by estimating fixed slopes (or fixed intercepts) are the only ways to explore nonlinear effects in a three-wave dataset. No predictors were entered at Level 2; this second level is included simply to account for the clustered nature of the data. At Level 3, the presence (1) or absence (0) of the CREW intervention was included as a predictor. The interaction between Time (Time 1, Time 2, & Time 3) and Intervention (CREW vs. contrast group) was tested by including a cross-level effect between Time at Level 1 and Intervention group at Level 3. All slopes and intercepts were treated as random. HLM handles missing data by using all available information and treats the repeat participants as correlated observations and nonrepeat participants as independent observations, in a simultaneous between- and within-subjects analysis (Raudenbush & Bryk, 2002).

Effect sizes were calculated as the percent variance accounted for by the multilevel regression models compared to “null” models without the fixed effects entered, according to Snijders and Bosker’s method (1999) using pooled variances. For all self-reported outcomes, a large portion of the total variance exists between time periods (Level 1, percent ranged from 26.8% to 36.7%), a large portion exists between individuals (Level 2, range = 55.8% to 67.6%), and a smaller portion exists between hospital units (Level 3, 5.7% to 7.5%).

The hypotheses involve conceptual groupings of outcomes (civility, incivility, work attitudes, and distress) measured by several related scales. Although HLM is able to produce a multivariate test of parameters (Raudenbush et al., 2004; Snijders & Bosker, 1999; Tate & Pituch, 2007), the global test adds a fourth level to the model (measure within time within person within unit). Because our model already includes three levels, the maximum estimable in HLM, we approximated a multivariate test by creating four composite variables before analysis. Specifically, we combined similar measures together by first standardizing the scale totals, then taking the average of those standardized scale totals. The clustering strategy aligns with our conceptual model that proposes that improvements in civility have a general impact in decreasing distress and improving job attitudes.

Table 1 presents the means, standard deviations, Cronbach alphas, and correlations for the variables at Time 1.

Confirmatory Factor Analyses

Before conducting HLM analyses, we created three composite variables by taking the standardized mean of multiple subscales: (a) *Civility*, which includes the CREW civility and respect scales; (b) *Attitudes*, which includes trust, control, organizational commitment, job satisfaction, and professional efficacy scales; and (c) *Distress*, which includes burnout, turnover intentions, and physical symptoms of stress scales. Incivility variables (i.e., experienced supervisor incivility, experienced coworker incivility, own incivility) were not clustered together as a single composite because instigated incivility is distinct from received incivility (Blau & Andersson, 2005). To support the creation of these three composite variables, we conducted a confirmatory factor analysis using Mplus 6.0 (Muthén & Muthén, 2010). Total scores on each scale were used as indicators. We used data from all three time points in a simultaneous longitudinal CFA with a correlated AR(1) error structure (i.e., correlating the error terms for the same measures across waves), which accounts for the nonindependence of data at level 1 (time). The CFAs were carried out without accounting for the nested data structure at level 3 (nursing units) because we did not have enough units to support a conclusive analysis of this complexity.

We used MLR estimation, which is robust to violations of multivariate non-normality. A three-factor model (i.e., civility, attitudes, and distress) fit the data well ($\chi^2(528) = 1308.33, p < .001, CFI = .931, RMSEA = .032$). Factor loadings ranged from .38 to .86 and R^2 values for indicators ranged from .15 to .69. We compared the three-factor model to a one-factor model. If the change in CFI is greater than $-.01$, the one-factor model has significantly poorer fit (Cheung & Rensvold, 2002). The one-factor model had a CFI of .881 ($\Delta CFI = -.05$), indicating significantly poorer fit. Together, these analyses support the construct validity of our three composite variables.

Differences Between CREW and Contrast Groups After Intervention

Civility. When predicting the civility composite variable, there was a significant linear Time by Intervention interaction

Table 1
Means, Standard Deviations, Cronbach Alpha, and Correlations Among the Variable at Time 1

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Civility	3.68	0.71	.88	.53	-.32	-.50	-.38	-.22	-.32	-.24	-.16	.36	.29	.42	.51	.37
2. Respect	3.37	0.78		.71	-.40	-.36	-.25	-.39	-.43	-.41	-.30	.61	.52	.61	.63	.27
3. Supervisor incivility	0.61	0.89			.84	.35	.35	.35	.37	.33	.29	-.43	-.33	-.28	-.45	-.15
4. Coworker incivility	0.80	0.85				.85	.51	.25	.31	.20	.29	-.20	-.18	-.26	-.35	-.16
5. Instigated incivility	0.54	0.53					.74	.22	.34	.15	.21	-.23	-.16	-.22	-.30	-.20
6. Exhaustion	2.85	1.47						.91	.56	.40	.58	-.36	-.36	-.32	-.47	-.15
7. Cynicism	1.71	1.29							.82	.46	.40	-.41	-.39	-.46	-.57	-.34
8. Intention to quit	2.21	0.95								.92	.32	-.35	-.34	-.41	-.46	-.20
9. Physical symptoms	2.12	1.29									.79	-.28	-.27	-.23	-.38	-.09
10. Management trust	3.14	0.84										.77	.52	.50	.57	.23
11. Control	3.22	0.77											.81	.44	.48	.32
12. Commitment	3.28	0.91												.46	.51	.32
13. Job satisfaction	5.26	1.00													.75	.36
14. Efficacy	4.70	0.91														.75

Note. All correlations $p < .01; n = 1136$; Cronbach alpha on main diagonal.

[$t(32) = 2.67, p = .01$], supporting Hypothesis 1a. Quadratic effects using fixed slopes and random intercepts were nonsignificant ($p > .05$). To generate plots for significant interactions, Table 2 also reports the Time 1 to Time 3 change coefficients for intervention and contrast units separately. For civility, the intervention units showed a significant net improvement from Time 1 to Time 3, whereas contrast units did not improve. In Table 2 under “simple slopes,” the B coefficients for the main effect for time represent change over time for the intervention and control groups respectively. These results indicate an average linear increase in civility of 0.20 units every six months since the intervention began.

Figure 1 depicts the interaction of Time with Intervention for the civility composite variable. For the figures, we plotted points by solving the simple effect HLM regression equations (change over time for CREW and contrast units separately) and translating the points into standard deviation units of change from the grand mean. In Figure 1, CREW units showed civility that was, on average, .20 standard deviations below the grand mean at Time 1, and .19 standard deviations above the grand mean by Time 3, following an Augmentation Model of change. On the contrast units, civility was .01 standard deviations below the grand mean at Time 1 and nearly identical at .04 standard deviations above the grand mean at Time 3. This method of presentation both allows equivalent presentation for different scales of measurement and helps clarify issues of regression to the mean (see the Discussion section).

Supervisor, coworker, and instigated incivility. When predicting incivility (i.e., experienced supervisor incivility, experi-

enced coworker incivility, and instigated incivility separately), only experienced supervisor incivility had a significant linear Time by Intervention interaction [$t(32) = -2.65, p = .013$], supporting Hypothesis 1c, but failing to support Hypothesis 1b and Hypothesis 1d. Quadratic effects using fixed slopes and random intercepts were nonsignificant ($p > .05$). Both experienced coworker incivility and instigated incivility did not change over time (i.e., linear and quadratic terms were both nonsignificant). The results for experienced coworker incivility and instigated incivility are located in Table 2. Figure 2 depicts the interaction of Time with Intervention for the experienced supervisor incivility variable, showing that experienced supervisor incivility on CREW units was, on average, .20 standard deviations above the grand mean at Time 1 but .10 standard deviations below the grand mean by Time 3, following an Augmentation Model of change. On the contrast units, incivility was .04 standard deviations below the grand mean at Time 1 and .01 standard deviations above the grand mean at Time 3.

Psychological distress. When predicting the distress composite, there was a significant linear Time by Intervention interaction [$t(32) = -2.43, p = .049$], supporting Hypothesis 1e. Quadratic effects using fixed slopes and random intercepts were nonsignificant ($p > .05$). Figure 3 depicts the interaction trend of Time with Intervention for the distress composite variable, showing that distress on CREW units was, on average, .12 standard deviations above the grand mean at Time 1, but .13 standard deviations below the grand mean by Time 3, following an Augmentation Model of change. On the contrast units, distress was .01

Table 2
Hierarchical Linear Modeling Results

	Civility cluster	Attitudes cluster	Distress cluster	Instigated incivility	Co-worker incivility	Supervisor incivility	Absences
Time × CREW intervention interaction effect							
Linear B	0.17	0.13	-0.11	-0.01	-0.06	-0.15	-0.05
Linear t_{df}	2.67 ₃₂ *	4.07 ₂₀₁₄ ***	-2.43 ₃₂ *	0.31 ₃₂	-1.21 ₃₂	2.65 ₃₂ *	-1.14 ₁₉₀₅
Quadratic B	—	-0.11	—	—	—	—	-0.23
Quadratic t_{df}	—	-1.95 ₂₀₁₄ *	—	—	—	—	-2.94 ₁₉₀₅ **
R ²	9.68%	1.47%	1.85%	3.72%	2.14%	2.96%	—
Intervention group only: Time simple effect							
Linear B	0.20	0.17	0.14	-0.02	-0.04	-0.14	—
Linear t_{df}	4.59 ₇ **	6.18 ₆₀₅ ***	4.02 ₇ **	1.00 ₇	0.99 ₇	2.29 ₇ †	—
Quadratic B	—	-0.14	—	—	—	—	—
Quadratic t_{df}	—	-2.75 ₆₀₅ **	—	—	—	—	—
R ²	12.17%	6.02%	8.01%	9.37%	7.46%	7.52%	—
Control group only: Time simple effect							
Linear B	0.03	0.05	-0.01	-0.01	0.03	0.02	—
Linear t_{df}	0.83 ₂₅	3.02 ₁₅₃₇ **	-0.72 ₂₅	0.90 ₂₅	1.04 ₂₅	0.91 ₂₅	—
Quadratic B	—	-0.04	—	—	—	—	—
Quadratic t_{df}	—	-1.62 ₁₅₃₇ *	—	—	—	—	—
R ²	7.23%	0.68%	0.00%	4.08%	0.76%	0.00%	—
Pattern observed	Augmentation	Steady state	Augmentation	No change	No change	Augmentation	Lost momentum

Note. When quadratic slopes are not reported in Table 2, this indicates that the quadratic slope using fixed slopes and random intercepts was nonsignificant. In this case, the linear model with random slopes and random intercepts is preferred and reported instead. Percent variance not calculated for Absences because of an overdispersed Poisson distribution. The analyses for the simple time effects for absences failed to converge, and are thus not reported.

† $p < .06$. * $p < .05$. ** $p < .01$. *** $p < .001$.

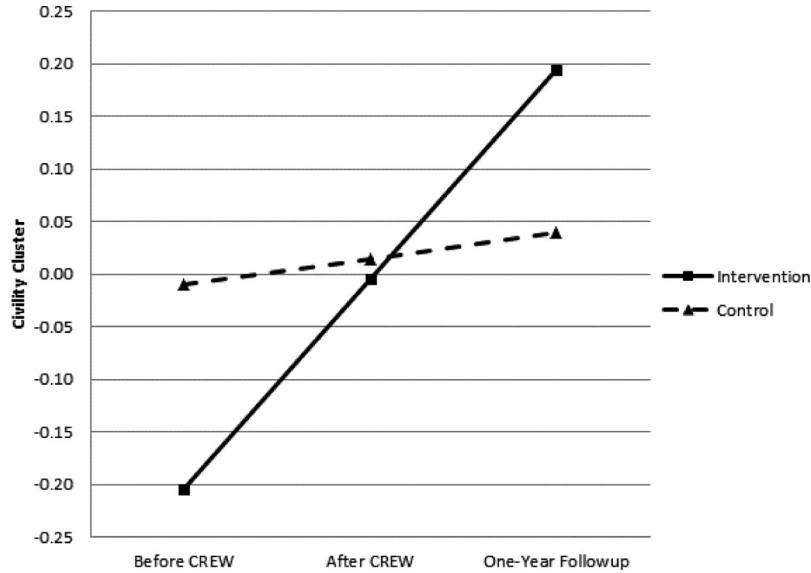


Figure 1. Interaction of time and intervention for civility.

standard deviations above the grand mean at Time 1 and .01 standard deviations below the grand mean at Time 3.

Job attitudes. Exploratory analyses suggested that the job attitudes cluster was best described as a quadratic relationship. A quadratic model with fixed slopes and random intercepts revealed a significant linear Time by Intervention interaction [$t(2014) = 4.07, p < .001$], and a significant quadratic Time² by Intervention interaction [$t(2014) = -1.95, p = .05$], supporting Hypothesis 1f. This quadratic model accounted for 1.47% of the variance and followed a Steady State Model of change. Figure 4 depicts the interaction of Time with Intervention for the job attitudes composite variable, showing that job attitudes on CREW units were, on average, .21 standard deviations below the grand mean at Time 1, but .13 standard deviations above the grand mean by Time 3. On the contrast units, job attitudes were .05 standard deviations below the grand mean at Time 1 and .05 standard deviations above the grand mean at Time 3.

Absences. The test for absences used a Poisson distribution option to accommodate the large number of zero values in the data, and restricted the analysis to participants with full-time and part-time employment contracts. Exploratory analyses suggested that the data were best described by a quadratic relationship with fixed slopes and random intercepts. In this model, we failed to find a significant linear Time by Intervention interaction [$t(1905) = -0.40, p = .69$] and found a significant quadratic Time² by Intervention interaction [$t(1905) = 3.51, p = .001$]. Although the results provide credible values for the interaction significance tests, there is currently no agreed-upon method for calculating percent variance accounted for in a three-level, Poisson analysis. In general, calculations of variance accounted for in any multilevel model with random slopes is difficult and not well understood (Hox, 2010). Figure 4 depicts the interaction of Time with Intervention for absences based upon the means for each interaction cell. As shown in Figure 5, absences among CREW units dropped dramatically (as reported in Leiter et al., 2011) but increased

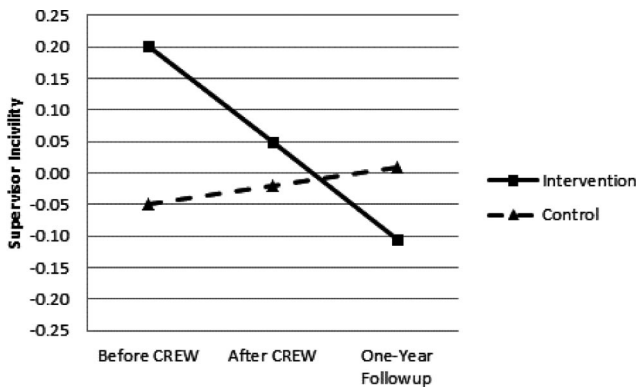


Figure 2. Interaction of time and intervention for experienced supervisor incivility.

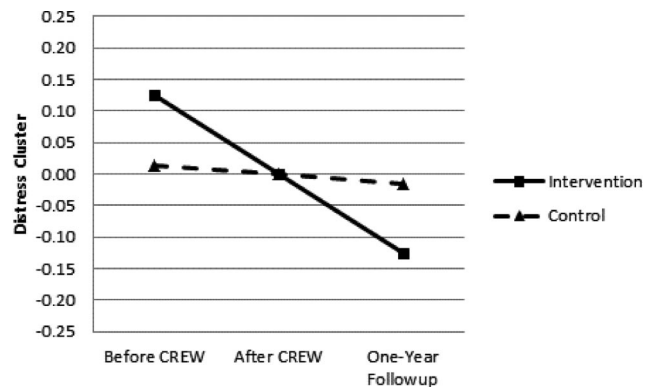


Figure 3. Interaction of time and intervention for distress.

subsequently at follow-up. In contrast, absences changed little for contrast groups. Although the two groups differ in the slope of their curves, the differences were not in accordance with Hypothesis 1g.

Mediation Analyses

We also tested for mediated moderation. That is, does the Time × Intervention interaction predict increased civility, which in turn predicts increased attitudes, decreased distress, and decreased absences? We tested for mediated moderation following the procedures of Muller, Judd, and Yzerbyt (2005) who require direct effects among variables as a condition to test for mediation. The only relationships that met preconditions for mediated moderation were civility and experienced supervisor incivility as mediators of the interaction on the outcomes distress and attitudes.

Job attitudes. The significant Time × Intervention interaction on attitudes was fully mediated by the civility variables. Both the civility cluster ($B = .51, p < .001$) and experienced supervisor incivility ($B = .13, p < .001$) were significant predictors of distress in the model, and the Time × Intervention interaction was reduced from statistical significance ($B = .12, p = .02$) to non-significance ($B = .01, p = .55$) when the mediators were added to the equation.

Psychological distress. The significant Time × Intervention interaction on distress was fully mediated by the civility variables. Both the civility cluster ($B = -.28, p < .001$) and experienced supervisor incivility ($B = .19, p < .001$) were significant predictors of distress in the model and the Time × Intervention interaction was reduced from statistical significance ($B = -.11, p = .02$) to nonsignificance ($B = -.03, p = .35$) when the mediators were added to the equation, meeting condition (d).

Level 2 Covariates³

Because of the large proportion of variance available at level 2, we reran every analysis with three level 2 covariates: Age, nurse status (1 = nurse, 0 = non-nurse), and managerial status (1 = manager, 0 = nonmanager). Age was negatively associated with absences and distress. Nurse status was negatively associated with absences, distress, job attitudes, experienced coworker incivility, and instigated incivility. Managerial status was positively associated with distress and job attitudes. Covariates accounted for

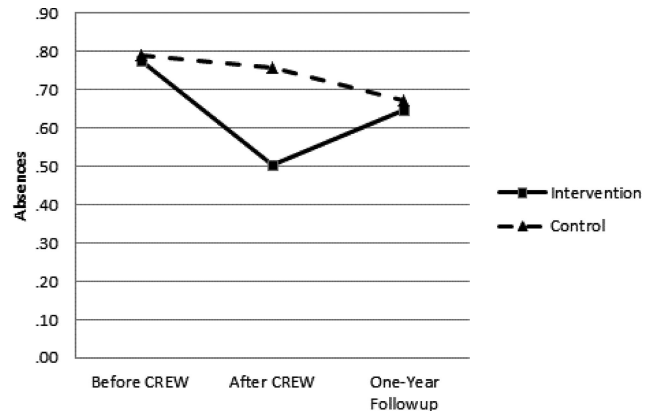


Figure 5. Interaction of time and intervention for absences: cell means.

significant level 2 variance in distress (15.14%), job attitudes (9.87%), experienced coworker incivility (8.14%), and instigated incivility (3.10%). Percent variance cannot be reliably calculated for absences because of the Poisson distribution. The pattern of findings reported in Table 2 remained unchanged, with two exceptions: (a) The interaction effect for the distress cluster becomes marginally significant ($p = .08$); and (b) The pattern of results for job attitudes cluster changes from Steady State (quadratic) to Augmentation (linear).

Discussion

The goal of this study was to examine whether change produced by a civility intervention, CREW, could be sustained over a 1-year period. Building on the findings of a significant treatment effect of CREW immediately after intervention, we found that the gains in civility, incivility, workplace distress, and job attitudes from Time 1 to 2 found in Leiter et al.’s (2011) study were sustained at Time 3. However, the improvements in self-reported absences were not sustained at follow-up, demonstrating a Lost Momentum Model, such that we were unable to distinguish the CREW and contrast groups on the slopes of their absence rates across the three assessments. The results for the CREW groups on civility, experienced supervisor incivility, and distress reflected an Augmentation Model in that a linear improving slope best fit the data. In contrast, the results for the CREW groups on job attitudes reflected a Steady State Model in that a quadratic curve of improvement followed by leveling best fit the data. The results make a valuable contribution in both demonstrating an enduring improvement in some outcomes following the CREW intervention and by suggesting some of the conditions that permit gains to be sustained.

The most fundamental finding is the sustained improvement in civility and respect, which was the direct, immediate target of the CREW method. The improvements in civility relative to the contrast groups immediately after intervention (Leiter et al., 2011) and one year later suggest that (1) work groups’ social environments are amenable to change, and (2) these improvements have the potential to become self-sustaining in that they continued after active intervention ended. These gains may be perpetuated because

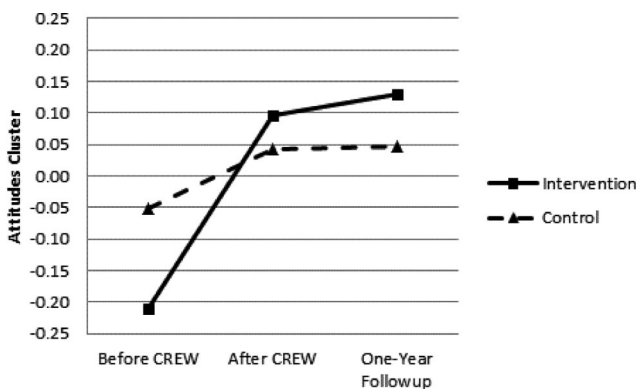


Figure 4. Interaction of time and intervention for attitudes.

³ Thanks to an anonymous reviewer for suggesting this re-analysis.

improvements in civility increase the resource base of a work unit, such that civility exchanges are more likely to enhance employees' self-esteem and energy at work. In contrast, incivility acts as an additional and nonproductive demand by prompting distressing emotional experiences and by undermining employees' attempts at collaboration.

Decreases in experienced supervisor incivility provide further evidence that CREW encourages a more positive social environment. The decreases in workplace distress are consistent with our expectations that the post-CREW social environment improves the balance of resources to demands on a work unit. Pleasant social interactions not only convey a sense of belonging, but they also support psychological safety (Edmondson, 1999). By changing an ongoing part of work (i.e., social contact with colleagues) from the demand to the resource side of the balance, improving the social environment can make a dramatic contribution to the quality of the work experience.

However, despite an improvement in civility, we did not have a significant effect for experienced coworker incivility. This pattern may reflect a greater efficacy for CREW on the positive side of social relationships in contrast to the negatives side. It also may reflect a measurement difference, in that civility assesses the overall climate of a workgroup in contrast to the experienced incivility measure that assesses the frequency of incidents. This pattern is a worthy focus point for future research on interventions.

Consistent with the improvements in workplace distress, the analyses also supported improvements in job attitudes for the CREW groups, whereas the contrast groups remained constant over the study period. The improvement in job attitudes is consistent with the intervention's focus on positive goals of improving civility. The accompanying changes in job attitudes are consistent with working relationships as a major work resource (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Greater prevalence of positive encounters with colleagues, characterized by respect and civility, is associated with more direct access to the resource of emotional support, but it also suggests greater access to instrumental resources, such as colleagues' energy, knowledge, and capabilities.

Absences were the one area that showed a clear pattern consistent with the Lost Momentum Model in the analysis. Despite a significant improvement for the CREW groups from pre- to post-intervention (Leiter et al., 2011), the CREW groups' absence rates at follow-up did not differ significantly from the preintervention level. The significant interaction did not reflect the hypothesized sustained improvement in absences. The change recorded at Time 2 may have been in direct response to concurrent CREW participation. Future research should examine the relative impact of individual, unit, and organizational factors on individual absenteeism levels.

In general, these analyses provided evidence supporting the hypotheses that the CREW intervention has a broad and enduring impact on health care providers' behaviors and attitudes. Furthermore, the results suggest that improved attitudes and reduced distress have the potential to increase the likelihood of positive social encounters. In this way, an intervention can prompt an overall and self-sustaining improvement in the quality of social interactions at work. Examining the processes in groups that are changing their social dynamics would be a productive focus for future research.

The results resonate with the Broaden and Build model (Fredrickson & Branigan, 2005) that proposes that people develop new capabilities when they have a sense of psychological safety. In contrast, stressful situations tend to narrow the range of perception and behavior. That is, positive job attitudes and reduced workplace distress may increase receptiveness to new ways of interacting with colleagues, producing more civil encounters. Our results do not propose a positive spiral leading to ever-increasing levels of civility and attitudes, but improvements in attitudes and civility tend to be mutually supportive, helping to sustain improvements.

Limitations and Future Research

Please see Leiter (2011) regarding limitations in the design. Further research is needed on specific encounters among colleagues to shed light on the interpersonal dynamics that result in enduring change. We speculate that sustained change implies a meaningful change in dynamics, such as reciprocity and social contagion. An event-based research designed using a diary study format would permit a detailed evaluation of these constructs. Although such a design raises considerable challenges in that the data collection becomes so intrusive that it may influence participants' evaluation of their relationships, the benefits it provides is valuable for moving this literature forward.

Practical Implications

Workgroup interventions are costly in terms of time and money. They also have implications for the credibility of management in that employees may become skeptical or even cynical after experiencing a series of management initiatives whose impact is trivial or short-lived.

There is consistent research demonstrating that poor work relationships are associated with negative outcomes (e.g., burnout; Cortina et al., 2001; Leiter & Maslach, 1988; stress, LeBlanc & Kelloway, 2002; turnover intentions; Chiaburu & Harrison, 2008) and supportive relationships with coworkers or with supervisors are consistently associated with greater work engagement (Bakker, Albrecht, & Leiter, 2011), organizational commitment (Wanberg, Kammeyer-Mueller, & Marchese, 2006), management trust (Holste, & Fields, 2010), and job satisfaction (Simon, Judge, & Halvorsen-Ganepola, 2010). These studies underscore the proposition that incivility is expensive. The demands of experienced coworker incivility divert employee energy away from work activities and can result in increased illness and distress. The ability of CREW to effect a change and maintain this change over an additional 12 months bodes well for organizations, which typically are motivated to reduce these negative consequences.

Moreover, an implication from the CREW process is that enduring change is more likely when the intervention goes beyond inspiring insight to establishing explicit behaviors, such as civil interactions, that prompt similar behavior in return. When engaging in any work interventions aimed at social interactions, focusing on creating behaviors that sustain the positive work environment has the potential to establish a self-perpetuating process.

Conclusions

These findings contribute significantly to the previous literature on civility interventions, and more specifically, the CREW inter-

vention. Although the results for absences followed a Lost Momentum Model of returning to baseline after one year, the results for job attitudes followed a Steady State Model by remaining at the improved Time 2 level at follow-up, and the results for civility, incivility, and distress followed the most promising Augmentation Model of linear improvement over the three assessments. This study provides promising evidence of the validity and sustainability of the effects of the CREW civility intervention.

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