A scalable empathic supervision intervention to mitigate recidivism from probation and parole

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Incarceration is a pervasive issue in the United States that is enormously costly to families, communities, and society at large. The path from prison back to prison may depend on the relationship a person has with their probation or parole officer (PPO). If the relationship lacks appropriate care and trust, violations and recidivism (return to jail or prison) may be more likely to occur. Here, we test whether an "empathic supervision" intervention with PPOs—that aims to reduce collective blame against and promote empathy for the perspectives of adults on probation or parole (APPs)—can reduce rates of violations and recidivism. The intervention highlights the unreasonable expectation that all APPs will reoffend (collective blame) and the benefits of empathy—valuing APPs' perspectives. Using both within-subject (monthly official records for 10 mo) and between-subject (treatment versus control) comparisons in a longitudinal study with PPOs in a large US city (N_{PPOs} = 216; N_{APPs}=~20,478), we find that the empathic supervision intervention reduced collective blame against APPs 10 mo postintervention and reduced between-subject violations and recidivism, a 13% reduction that would translate to less taxpayer costs if scaled. Together, these findings illustrate that very low-cost psychological interventions that target empathy in relationships can be cost effective and combat important societal outcomes in a lasting manner.

intervention | recidivism | probation | parole | relationships

The United States is the most incarcerated country in the world (1). Each year, the United States spends more than $80 billion on prisons, probation, and parole (2). In addition to its dire financial costs, removal from mainstream society can also be associated with major negative life outcomes for the incarcerated and their families (3). While a significant portion of the incarcerated population recidivates, or returns to police or judicial custody, recidivisms are often due to probation or parole violations (e.g., failure to appear at hearings) as opposed to reoffending with new crimes (4). Given the large number of people on probation or parole, the high likelihood of arrest for a probation or parole violation and the high financial and social costs associated with such arrests, we explore an important question: how might violations and recidivism be mitigated for individuals on probation or parole?

Research in social psychology and criminology provide guidance for how to reduce recidivism among adults on probation and parole (APP). It is common for people to view recidivism through the lens of dispositional traits, thinking that APPs are predisposed to reoffend due to certain primitive personality traits (e.g., lack of self-control) that pertain to trait stability (5). While many factors contribute to recidivism from probation or parole, research shows that a key contributing factor is the mindset or responsivity—basic beliefs that guide the manner or means of interaction (6, 7)—of the probation or parole officer (PPO) in their relationships with APPs (8). Negative perceptions or mindsets about people on probation or parole (e.g., expecting all of them to reoffend) can hinder the interest of and capacity for PPOs to form and maintain productive relationships with people on probation or parole (9). Using the social-psychological approach of "wise interventions" (10) and highlighting the use of "soft skills" in the relationship dimension of the core correctional-practices framework (11), the present research targets the ways PPOs make sense of their interactions with APPs and intervenes to increase empathy and reduce recidivism.

A wise intervention approach can address issues of scalability (e.g., time, cost, and fidelity to procedure) that other popular policy-based (12) and skill-building (13) approaches face. Unlike intensive supervision programs or extensive trainings that are added to officers' already large caseloads and limited knowledge base for behavioral health (14), we test a wise intervention that officers complete in one brief online session. Wise interventions are designed to set in motion precise shifts in mindsets—beliefs about oneself, others, or situations that often involve a range in their perceived malleability or fixedness and often come from messages from society, interactions with others, and personal experiences (15, 16). The success of wise interventions depends on the extent to which they can shift mindsets, which is key in the present work given the strong lay theory about the fixed traits that define people who have been convicted of crimes. Yet, wise interventions typically target the stigmatized or negatively affected individuals in a context. The current randomized-controlled trial tests a cost-efficient and scalable wise intervention that targets probation and parole officers' mindsets about APPs and the nature of their relationships in a large probation and parole setting.

Empathic Supervision Intervention to Reduce Recidivism

All APPs on a PPO's caseload have been convicted of a crime, and many APPs reoffend. This regular exposure to APPs who

Significance

Recidivism to incarceration is a pervasive and costly societal issue and its rates are historically difficult to reduce. Psychology and criminology suggest that relationships between probation and parole officers (PPOs) and adults on probation or parole (APPs) play a pivotal role in whether APPs ultimately return to incarceration and that mindsets geared toward empathy may protect the relationship from psychological barriers to productive interactions. The present research tests the efficacy an empathic-supervision exercise with PPOs to mitigate recidivism in a longitudinal, randomized placebo-controlled field experiment with 216 officers who supervise ~20,478 APPs. As compared to a control condition, the treatment mitigated recidivism by 13% over the course of 10 mo.

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reoffend can lead a PPO to become more likely to view all APPs as likely to reoffend. Recent psychological research shows that "collective-blame" is a process by which people will blame all members of an outgroup for the acts of individual members of that group and therefore, expect other members to commit a similar offense (17). To curb collective blame, this study had PPOs complete a hypocrisy exercise which highlighted their biases in how they perceive outgroup versus ingroup behaviors, thereby reducing their likelihood to collectively blame an outgroup individual for the acts of their group. Participants experience hypocrisy in how they view themselves as distinct in their ingroup (PPOs) and the way they view members of another group as indistinct from one another (APPs). In past research, this has led participants to become less punitive toward individual members of an outgroup (e.g., supporting less surveillance of their neighborhoods) (17). We predict that this hypocrisy exercise will allow for positive and respectful interpersonal relationships to develop between APPs and PPOs. The present "empathic supervision" intervention aims to mitigate the development of collective blame toward APPs and temper increases in recidivism.

The empathic supervision intervention involves officers reading targeted passages, then answering questions that strategically emphasize empathizing with APPs, valuing APPs' perspectives, and maintaining quality relationships with them. Delivering a message in this manner is called "Saying-Is-Believing" and it allows participants to take ownership over the new mindset (16). Using this persuasion technique, a brief intervention can reduce punitive mindsets and behaviors over the course of several months (18). Such an intervention can also disrupt an otherwise recursive cycle of worsening sentiments (19) between PPOs and APPs that results in poor interpersonal relationships and a "revolving door" in and out of prison (20). The empathic supervision intervention aims to curb recidivism by leveraging psychological strategies to mitigate the potential for collective blame while emphasizing the value of constructive PPO–APP relationships.

We tested this intervention in a longitudinal, randomized placebo-controlled field experiment with a typical sample of PPOs in a department that serves one of the largest cities in the United States. All 290 PPOs in the department were invited to participate in this experiment. A total of 30 PPOs never entered the program, leaving 260 assigned to condition. While 22 PPOs (9 control; 13 treatment) could not be matched with follow-up survey data, an additional 22 PPOs (12 control; 10 treatment) could not be matched to departmental records (see consort diagram in *SI Appendix*, Fig. S1 and *Materials*). The final sample was 216 PPOs (52% female; 1% Asian, 42% Black, 8% Hispanic, 45% White, and 3% other; the average years of experience as an officer in the department = 10 y). Condition comparison analyses reveal that the treatment and control conditions were not significantly different on a variety of dimensions (e.g., size of caseload, type of caseload, presurvey measures, years of experience, etc.) (*SI Appendix*, *Materials* and Tables S1 and S2). The 216 officers (supervising N_{APPs} = ~20,478) were a diverse sample, representing 76% of PPOs in the department. The module was completed during the last 2 mo of the calendar year. One unit at a time, officers accessed the online study from a computer laboratory in their department and consented to participation.

Once in the computer laboratory, PPOs in both conditions were told that the purpose of the 30 min online exercise was to collect PPOs' perspectives about effective relationships with APPs and to collect their advice to share with new PPOs. They were told, "The primary purpose of this exercise is to hear your perspectives on beneficial strategies in your job in order to learn how [your department] can best support positive officer-client relationships in your department." Officers who consented to participate were randomly assigned to treatment or control condition (stratified by race and gender). Officers with the same types of cases are grouped into the units and divisions; therefore, given participation and randomization occurred one unit at a time, officers' case types were naturally equalized across treatment and control conditions. Reference *SI Appendix*, Tables S1 and S2 for comparisons of demographic information for each condition. PPOs in the treatment and control conditions completed similar exercises. The only difference was that content in the treatment condition was about empathic supervision to APPs whereas the content in the control condition was about using technology to be better organized.

Primary outcomes come from official departmental records. The official records are collected and reported on an internal website each month for high-level reviews of agency outcomes and staff performance. Thus, the records do not provide information (rates or demographics) for individual APPs. The records instead provide numbers and rates for all APPs under each PPO's supervision each month.

The primary outcomes were violations and recidivism. Violations are the percent of APPs that potentially committed a direct violation to the terms of their probation or parole each month. A potential direct violation is any arrest due to a criminal act that occurred during the period of supervision for which the disposition of guilt or innocence is still pending. Only after a person is convicted of said offense does it become an actual direct violation. This process of ascertaining actual direct violations can exceed beyond a single month, and thus, potential direct violations is the department's preferred marker for violations and is better suited for clear (month-based) longitudinal analysis. Recidivism was measured by the percent of APPs that were in custody in a correctional institution each month during the longitudinal experiment. Since this is a cross-sectional snapshot, the records are not able to distinguish when the individual was arrested or for how long the APP had been incarcerated.

Due to the nature of any large department's record-keeping procedures, violations and recidivism are distinct outcomes. While the latter can accumulate over time, the former is specific to each month.

Results

Analytic Plan. Models of each outcome include repeated measures for each of the 10 mo after the implementation of the experiment. Longitudinal data present the challenge of identifying an appropriate model that accurately reflects both the means over time and the residuals around those means; given that there are multiple potential models, we followed the recommendation of Liu et al. (21) and adopted a data-driven approach—Akaike information criterion (AIC) model comparison between various growth, covariance, and repeated measures ANOVA model specifications. Liu et al. (21) demonstrate via simulation that AIC comparison between these nonnested models provides a reliable method for selecting the most appropriate residual structure and making the most accurate statistical inferences. The models were run in the R-programming language using the package nlme version 3.1-148. Here, we report the results from mixed-effects growth models that include a first-order autoregressive process modeling the residuals within each officer. The AIC comparisons indicate a quadratic growth model is best fit for violations—pointing toward some significant curvature as fixed effects or as variability between participants—and a linear growth model is the best-fit model for recidivism (*SI Appendix*, *Materials* and Tables S3–S10). These growth models included fixed-effect covariates of the respective records for the 2 mo before the experiment was launched, random intercepts for participants, and random slopes of time for participants. Reported standardized effect sizes, d, for interactions were calculated using the formula discussed by Feingold (22) for growth model effect magnitude:

$$d_{\text{GMA-RAW}} = \frac{\beta_{11}(\text{time})}{\text{SD}_{\text{RAW}}},$$

where β_{11} is the difference in growth between the treatment and control group, time is the difference in time between the first postintervention month (coded 0) and last postintervention month (coded 9), and SD_{RAW} is the SD of raw scores. This d measure represents the mean difference at the end of the study between the treatment and control groups in terms of the variability (SD) of the dependent variables. To maintain a consistent scale for the standardized effects, the main effect d is calculated using the same formula but excluding time.

The treatment caused a significant reduction in the proportion of APPs who potentially violated the terms of their probation or parole, $b = -1.77$, SE = 0.69, t (208) = −2.56, $P = 0.011$, and $d = -0.13$. There was also a significant linear effect of time, $b = 0.51$, SE = 0.23, t (1,898) = 2.19, and $P = 0.029$, but no significant quadratic effect of time, $b = 0.00$, SE = 0.02, t (1,898) = 0.21, and $P = 0.837$, and no interaction effect for treatment condition and linear time, $b = -0.14$, SE = 0.33, t (1,898) = −0.43, and $P = 0.668$, or quadratic time, $b = 0.01$, SE = 0.03, t (1,898) = 0.43, and $P = 0.667$. See Table 1, Fig. 1, and *SI Appendix*, Tables S11 and S12.

The mixed-effects linear growth model for recidivism revealed a significant linear effect of time, $b = 0.48$, SE = 0.09, t (1,723) = 5.09, and $P < 0.001$. The effect of condition on recidivism was not significant at the start of the postintervention period, $b = -0.57$, SE = 0.77, t (192) = −0.75, and $P = 0.456$, because there would not have been enough time for cases to have made their way through official records. However, the interaction between condition and time was significant, $b = -0.32$, SE = 0.13, t (1,723) = −2.36, $P = 0.019$, and $d = -0.27$, indicating that the condition effect manifested over the course of the 10 mo period after the intervention was implemented. At month 10, officers in the treatment condition ($M = 23.01\%$) had lower recidivism than officers in the control condition ($M = 26.45\%$), t (192) = −2.73, and $P = 0.007$. See Table 1 and Fig. 1. The effects remained consistent while controlling for PPO race, gender, years of experience in the department, and departmental division such that the main effects of time and the interaction effect remained significant, $P < 0.001$ and $P = 0.022$, respectively. Reference *SI Appendix*, Table S13. An effect on recidivism that grows over time while there is an immediate effect on violations is consistent with the nature of these outcomes. A consistent lower rate of violations each month would contribute to a curbing of recidivism that develops over time. While speculative, it is possible that many violations lead to incarceration that lasted for months, which would compound each month. It is also possible that the empathic supervision intervention led APPs to be less likely to

Table 1. Growth curve models treated with random effects for subject intercepts and the linear and/or quadratic effect of time (subject level), as well as accounting for first-order autoregression predicting recidivism (Model 1) and violations (Model 2) while controlling for two baseline months

	Dependent variable	
	Recidivism (Model 1)	Violations (Model 2)
Constant	22.09***	11.61***
	(21.04, 23.15)	(10.66, 12.57)
Officer condition	−0.57	−1.77*
	(−2.07, 0.93)	(−3.12, −0.41)
Time (linear)	0.48***	0.51*
	(0.30, 0.67)	(0.05, 0.97)
Time (quadratic)		0.005
		(−0.04, 0.05)
Baseline month 1	0.42***	0.42***
	(0.23, 0.61)	(0.24, 0.61)
Baseline month 2	0.34***	0.48***
	(0.16, 0.52)	(0.29, 0.66)
Condition × time (linear)	−0.32*	−0.14
	(−0.58, −0.05)	(−0.79, 0.51)
Condition × time (quadratic)		0.01
		(−0.05, 0.07)
Subject intercept SD	2.94	3.06
Time (linear) SD	0.52	1.33
Time (quadratic) SD		0.07
Correlation(intercept, time [L])	0.94	0.29
Correlation(intercept, time [Q])		−0.53
Correlation(time [L], time [Q])		−0.78
First-order autoregressive Φ	0.58	0.28
Observations	1,921	2,114
Log likelihood	−5,688.55	−6,410.12
Akaike information criterion	11,399.10	12,852.24
Bayesian information criterion	11,460.27	12,942.74

The outcomes are based on a proportion calculated for each officer, because the department only records proportions for officers, not records for individual people under their supervision. Estimate of regression β coefficients (not in parentheses) and 95% confidence intervals (in parentheses) are reported for each outcome.
*$P < 0.05$, **$P < 0.01$, and ***$P < 0.001$.

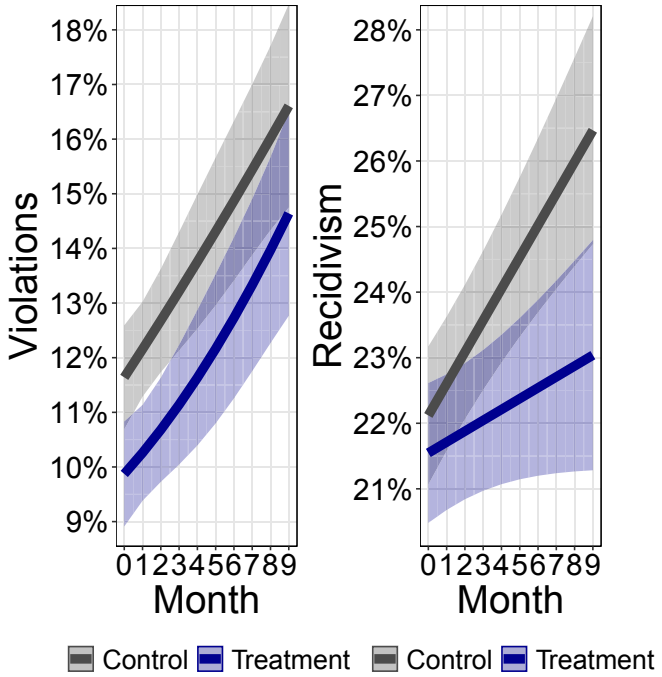

Fig. 1. Plot of treatment effects data from a linear mixed-growth model treated with random effects for subject intercepts and the linear effect of time (subject level), as well as accounting for first-order autoregression on the proportion of APPs under PPOs' supervision who are in custody ("Recidivism") and a quadratic mixed-growth model treated with random effects for subject intercepts and the quadratic effect of time (subject-level), as well as accounting for first-order autoregression on the proportion of APPs under PPOs with potential direct violations to the terms of probation or parole ("Violations"), while controlling for respective data for two baseline months. On the x-axis, "0" through "9" are the 10 mo following the treatment period, such that "0" is the first postintervention month and "9" is the 10th postintervention month.

receive longer sentences to prison (as opposed to jail) or to receive sentences to incarceration at all. Or it is possible that it simply takes more time to see changes in something lasting like time reimprisoned, as opposed to rearrests (23). The data available were unable to substantiate or contradict these possibilities. Reference *SI Appendix*, Tables S14 and S15 for analyses of other, less reliable records (i.e., measures created by the research team based on interpretation of departmental records).

In addition to the primary behavioral outcomes of violations and recidivism for APPs, we were also interested in mindset shifts in PPOs' collective blame of APPs. Did the intervention develop a mindset of less collective blame? An average was taken of PPOs' responses to whether all people on probation or parole are responsible for a crime and likely to commit the same crime on a scale of 1 to 100. Condition was coded −1 = control and 1 = treatment. Baseline collective blame was based on PPO's responses during the intervention, and outcome collective blame was based on PPO's responses 10 mo postintervention. While a linear regression model revealed no baseline effects during the intervention, $b = -0.27$, SE = 1.08, t (206) = −0.25, and $P = 0.805$ (*SI Appendix*, Table S16), 10 mo later, there was a significant effect of condition on collective blame, $b = -2.44$, SE = 1.22, t (210) = −2.00, and $P = 0.047$, such that officers who engaged with the empathic supervision intervention showed significantly less collective blame against APPs ($M = 9.49$ and $SD = 14.95$), as compared to officers in the control condition ($M = 14.37$ and $SD = 20.21$). See Fig. 2 and *SI Appendix*, Table S17. There were no major changes in the estimated effects or SEs while controlling for baseline collective blame, $b = -2.34$, SE = 1.19, t (202) = −1.96, and $P = 0.051$, and while controlling for PPOs' race, gender, years of experience in the department, and departmental division, $b = -2.37$, SE = 1.20, t (196) = −1.98, and $P = 0.049$. Other unrelated psychological outcomes (e.g., lay theories of personality, prosocial behavior, etc.) were measured, and analyses are included in the *SI Appendix*, *Materials*.

Discussion

This research advances scientific theory about the potential for targeted wise interventions to produce lasting effects on real-world and consequential behavioral outcomes. These findings provide evidence that, beyond other structural challenges [e.g., race and unemployment (24) or mental illness (25)], 1) relationships among PPOs and APPs are a pivotal entry point to combat recidivism rates, and 2) targeted focus on psychological processes (i.e., curbing collective blame) in PPOs can lead to long-term reductions in violations and recidivism from probation and parole. Beyond scientific theory, the effect of this brief intervention could translate to less in taxpayer costs per year across the country. According to recent US Bureau of Justice Statistics figures, public corrections agencies (i.e., prisons, jails, parole, and probation) cost $80.7 billion (26). A 13% reduction in recidivism, like the findings in the present research, could help to cut those costs and improve outcomes for corrections programs.

Wise interventions have been used to create large and sometimes lasting improvements in education (18, 27, 28), teen pregnancies (29), parenting (30), voter turnout (31), personal health (32), and intergroup relationships (33) and most have targeted treatment at the stigmatized or negatively affected group. The empathic supervision intervention presents a new frontier for wise interventions to shift the mindsets of a few to improve life outcomes of many. This is a benefit of not targeting the treatment at the stigmatized or negatively affected (i.e., APPs) but instead focusing the treatment on

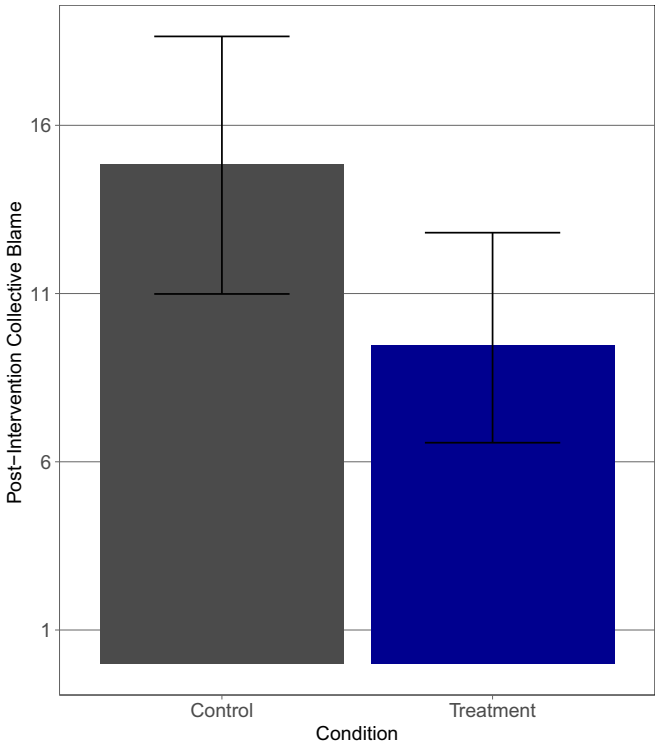

Fig. 2. Plot of treatment effects on collective blame against adults on probation or parole 10 mo postintervention. The scale is 0 to 100. Error bars represent 95% confidence intervals.

"gate-keepers," individuals in an influential position to set the tone of the relationship, change the context, and determine the outcomes (i.e., PPOs) (34). The present research is proof of this concept and that it can work in a scalable manner. Recidivism rates are an extremely difficult outcome to mitigate. If a targeted shift in dozens of officers' mindsets can cause thousands of individuals to not return to jail in a single year, then there is potential for lasting effects on other pervasive and pivotal issues in criminal justice and beyond.

Materials and Methods

Treatment Condition. PPOs begin the 30 min-long online exercise by reading an article that described the PPOs' critical role in ensuring their APPs meet the conditions of their sentence. For example, it read, "Officers are pivotal in working to improve the lives of the client and the greater community by guiding and supporting successful reentry." These passages were reinforced through a narrative from another PPO in their department:

> "For me, it's when I'm walking down the street with my headphones on and somebody is running me down, 'Miss ___, Miss ___! You remember me? I'm doing this, I'm doing this with my life... I'm really fulfilled when it comes to things like that... so when I run across those guys and they're doing well I'm like, 'awesome!' ...those are some of the more fulfilling parts of the job for me."

PPOs then completed an activity that asked them to select the most important reasons why they became PPOs and answer questions about why those values are important to them. They then read an article about how creating mutually respectful relationships with APPs allows PPOs to be more effective at meeting the needs of APPs (e.g., traumatic incident resolution, substance dependency, etc.). The article discouraged the view of APPs as "mere numbers." Instead, the article and activity encouraged PPOs to recognize how feeling respected and heard by their PPO can increase APPs' motivation to reestablish and actively reach for goals of social reintegration. PPOs read about how feeling respected can buttress against potential obstacles to successful reintegration into society (e.g., feelings of stress or of being controlled, anxieties due to social and financial changes, etc.).

Next, to facilitate a feeling of hypocrisy (a psychological tool used to offset collective blame, see ref. 17) about judging one APP based on the actions of another APP, all PPOs read two popular press articles: 1) an article about a PPO who broke the law (PPO offense article), followed by 2) an article about an APP who broke the law after reintegration (APP offense article). After the PPO offense article, they were asked how responsible all PPOs are for the crime depicted in the article and how likely are other PPOs to commit the same offense. Next, they read the APP offense article, after which they reported, on a scale of 1 to 100, how responsible all APPs are for the crime of the person in the article and how likely other APPs are to commit the same offense ("baseline collective-blame" reported in *Results*). PPOs were also asked to report how likely individual APPs are to commit a similar crime in the future.

At the end of the online module, PPOs were asked to write a letter to a new PPO describing their experiences upholding the values and employing the techniques highlighted in the module. They were reminded of the core components of the module, and they were asked to write about similar examples (i.e., "The work of a parole or probation officer can come to feel impersonal. It is critical for officers to remember the humanity in their work and the people they work with."). The format of this interactive exercise, the "Saying-is-Believing" task, draws on other successful social-psychological interventions that fortify a new mindset by allowing participants to take ownership over the outcome mindset (18, 35). Last, PPOs completed a survey (immediate postsurvey), and they completed a follow-up survey 10 mo later (follow-up postsurvey) to determine the effects of the intervention (reference *SI Appendix*, *Materials* for analyses of all outcomes not reported in the main text).

Altogether, this intervention focused on the PPOs' pivotal role in the life of each APP under their supervision. The empathic supervision intervention highlighted how seeking the perspective of an APP, in a respectful way, can build trust in the PPO–APP relationship and how this trust can allow PPOs to be more effective in reaching their goals (e.g., to help APPs get back on their feet and to improve the greater community). However, it is important to note that the intervention did not tell PPOs that they need to provide "special treatment" or deviate from standard procedures—such as investigating and reporting violations. Rather, this intervention aims to remove psychological hurdles to connecting with APPs and to set officers on a path to communicate respect and care in a way that can temper the rise of recidivism. In short, the intervention encourages a mindset that can more productively sustain high-quality relationships with the potential to mitigate recidivism and violations.

Control Condition. The control exercise was similar to the treatment module in form and interactivity but discussed ways to use technology to better manage tasks for work (reference *SI Appendix, Materials* for more details). For example, the control module began by explaining the following:

> As you know, one important part of being a parole or probation officer is making sure you manage documents and communications well. Our research team has been studying how people can make better use of technology at their jobs. This research explores how technology can help people better communicate and organize on the job.

Participants in the control condition are then asked to read information about how teachers use technology at their job as a means to "spark some ideas for [them] to share...how technology allows [them] to be more effective and efficient at [their] job." This placebo comparison is adapted from previous research (18) and tests whether the intervention, as compared to typical best practices for technology use in a work environment, can reduce recidivism and violations. While the control module engages PPOs with ways to improve their efficacy at work, the control condition does not focus on the value of learning individual APP's perspectives or the benefits of modeling respect and care in relationships with APPs.

Due to the delicate, potentially identifiable nature of information about current PPOs' practices and the APPs under their supervision, data are not publicly available at present. Nonetheless, all data generated and/or analyzed during the current study and R-coding are available from the corresponding author on reasonable request. These hypotheses and procedures were preregistered at Officer Experience Exchange. The analytic plan had to be adjusted after data were collected. Please reference *SI Appendix, Materials* for explanation of deviation from preregistration and of unsupported hypotheses for immediate outcomes. The full study protocol was approved by the Institutional Review Board at the University of California, Berkeley. The first page of the online module included a consent form that was approved by the IRB and explains that pressing the "next page" arrow button would opt them into participation in the voluntary study. If PPOs opted not to participate, they were instructed to stay in the computer laboratory and browse the internet. Participation was treated as professional development and every PPO received professional development credit from their department for being in the computer laboratory, regardless of participation in this study.

Data Availability. Data are not publicly available at present due to the delicate, potentially identifiable, nature of sharing information about current officers' practices and the individuals on probation or parole under their supervision. Nonetheless, all data generated during and/or analyzed during the current study and R-coding are available from the corresponding author on reasonable request.

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