

THE IMPACT OF A COMMUNITY SUPERVISION OFFICER TRAINING PROGRAM ON CLIENT OUTCOMES

A Propensity Score Modeling Analysis by Officer Training Dosage

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A growing body of research indicates officer training in correctional supervision programs is associated with improved use of evidence-based practices and lower rates of client recidivism. This scholarship also suggests larger reductions in recidivism can be achieved when officers implement program skills with higher quality. Despite their potential, research has shown standard training regimens alone are not sufficient in making all participants proficient users of skills. There is a need to determine what intensity of training produces the best results. In response, this study assessed the impact of federal probation officer training dosage in the Staff Training Aimed at Reducing Re-arrest (STARR) program on the outcomes of their clients. The results indicated clients of STARR-trained officers had fewer probation revocations and new arrests but more technical violations and positive drug tests. We also found clients supervised by officers with more versus less exposure to the STARR model had better outcomes.

Keywords: community supervision; correctional training programs; officer training; probation; STARR

On any given day, there are approximately 4.4 million adults supervised on probation or parole in the United States (Kaeble & Alper, 2020). This equates to roughly one in every 58 adults or about 1.7% of the total U.S. adult population. Despite this high number, research finds traditional community supervision practices are ineffective at reducing recidivism (Bonta et al., 2008; Paparozzi & Gendreau, 2005; Solomon, 2006). At the same time, there is mounting evidence to suggest that correctional services in alignment with the

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principles of effective intervention are the most effective strategies for improving client behavior (Andrews et al., 1990; Bonta & Andrews, 2017; Cullen & Gendreau, 2000; Gendreau, 1996; Smith et al., 2009). It is only in the last decade, however, that formalized efforts have been undertaken to incorporate these principles into the everyday supervision practices of probation and probation officers (Bourgon et al., 2012; Clodfelter et al., 2016; Gleicher et al., 2013; Lowenkamp, Alexander et al., 2014; Rugge & Bonta, 2014; Toronjo & Taxman, 2018). While the empirical evidence indicates that officer training in these principles is associated with lower rates of client recidivism (Chadwick et al., 2015), the specific intensity of training necessary to produce the best outcomes remains unknown.

This study sought to address this gap in knowledge by examining the impact of officer training dosage in the principles of effective intervention on the supervision outcomes of their clients. Drawing on the prior literature, we hypothesized that clients supervised by officers trained in the Staff Training Aimed at Reducing Re-arrest (STARR) program would have lower rates of recidivism compared to those monitored by staff not trained in the model. We further anticipated that the magnitude of this effect would be more pronounced among the clients of the officers who received more versus less-intense training exposure to the STARR model. To test these hypotheses, we collected and analyzed officer and client data from a federal probation district in Florida. We begin with a review of the theory and prior research that guided the formulation of our hypotheses. We then describe our data and analytical plan, present the study's findings, and discuss the policy and research implications of this work.

PRINCIPLES OF EFFECTIVE INTERVENTION

Based on the General Personality and Cognitive Social Learning (GPCSL) perspective of criminal conduct, the principles of effective intervention have become the dominant model of correctional rehabilitation (Bonta & Andrews, 2017). There are 15 general, clinical, and organizational principles that describe best practices in correctional assessment and intervention. At its core, the GPCSL involves the three treatment principles of risk, need, and responsivity. The risk principle asserts that criminal behavior is predictable and further suggests that more-intensive services should be reserved for higher risk individuals. The need principle emphasizes that dynamic crime-producing risk factors, or criminogenic needs, should be the primary focus of all correctional interventions (e.g., antisocial personality pattern, procriminal attitudes, and procriminal associates). The responsivity principle indicates that treatment services should be cognitive-behavioral in nature and further delivered in a manner that is tailored to meet the specific learning style, motivation, abilities, and strengths of each client (Bonta & Andrews, 2017).

There has been strong empirical evidence reported in the literature to support the principles of effective intervention. In 1990, Andrews and colleagues meta-analyzed 154 correctional treatment comparisons and found support for the principles of risk, need, and responsivity. This database has since been expanded to include 374 comparisons and the findings indicated that adherence to all three principles reduces recidivism by 26%, whereas failure to adhere to any of the treatment principles increases recidivism by 2% (Bonta & Andrews, 2017). Collectively, there have now been more than 100 meta-analyses conducted on the correctional treatment literature, and these results have been replicated with remarkable consistency (Lipsey & Cullen, 2007; MacKenzie, 2006; McGuire, 2013; Smith et al., 2009).

CORE CORRECTIONAL PRACTICES

Scholars have drawn upon these evidence-based principles to articulate a set of core correctional practices (CCPs) that are intended to increase the therapeutic effectiveness of correctional interventions (Dowden & Andrews, 2004). The CCPs have evolved over time and include anticriminal modeling, effective reinforcement, effective disapproval, effective use of authority, structured learning, problem-solving, cognitive restructuring, and relationship skills (Gendreau et al., 2010). Although the use of these service delivery skills has been shown to be an effective strategy for reducing recidivism at the organizational level (Farringer et al., 2019; Lowenkamp et al., 2006; Matthews et al., 2001), research has also generally found poor adherence to the principles of effective intervention and CCPs among probation and parole officers in community corrections settings (Bonta et al., 2008; Dyck et al., 2018; Viglione, 2017; Viglione et al., 2015). For example, research finds while probation and parole officers conduct risk assessments, they often make more restrictive decisions than the results indicate (Miller & Maloney, 2013; Viglione et al., 2015), rarely use the assessment information to determine the frequency of supervision meetings, and often do not address criminogenic needs (Bonta et al., 2008; Viglione et al., 2015).

In response, there have been several recent community supervision training programs developed to teach officers about these principles and how to more effectively apply the CCPs in the interactions with their clients (Toronjo & Taxman, 2018; Trotter, 2013). Several of the most popular models in the United States and Canada have included the proactive community supervision (PCS) model (Taxman, 2008), the strategic training initiative in community supervision (STICS) model (Bonta et al., 2010), the effective practices in community supervision (EPICS) model (Smith et al., 2012), and the STARR model (Robinson et al., 2011). Despite the differences in content between the training programs, the overarching goal of each has been to increase officer adherence to the principles of effective intervention and use of the CCPs in an effort to decrease client recidivism (Chadwick et al., 2015).

RESEARCH ON COMMUNITY SUPERVISION OFFICER TRAINING PROGRAMS

Scholarship on community supervision officer training programs has generally focused on three outcome categories. The first involves the specific content of the officer–client interactions. Research on this topic has analyzed audiotaped recordings of these one-on-one sessions and found that trained officers were more likely to discuss criminogenic needs and less likely to discuss noncriminogenic needs than untrained officers (Bonta et al., 2011, 2019; Robinson et al., 2011; Smith et al., 2012). In addition, trained officers have been shown to spend less time focused on the conditions of probation with clients compared to untrained officers (Bonta et al., 2011, 2019).

The second category includes officer use of CCPs. This type of inquiry also involves the evaluation of audiotapes and has shown that trained officers were much more likely to effectively structure their client contact sessions (e.g., check-in for any crisis, review the last session, conduct an intervention, assign homework), apply relationship-building strategies (e.g., role clarification, active listening, and mutual agreement on goals), use bridging skills (e.g., the effective use of reinforcement, disapproval, authority, and punishment), and implement cognitive-behavioral intervention techniques (e.g., cognitive restructuring, skill

building, problem-solving, and role-playing) in their one-on-one interactions with clients (Bonta et al., 2011, 2019; Labrecque et al., 2013; Latessa et al., 2013; Robinson et al., 2011, 2012; Smith et al., 2012). Despite the posttraining increases noted in the use of these correctional skills, there remains significant room for improvement as trained officers appear to only apply the CCPs in 28% to 58% of their one-on-one interactions with clients (Bonta et al., 2011; Latessa et al., 2013; Robinson et al., 2011; Viglione & Labrecque, in press). These studies have also revealed that even when some trained officers apply these skills in practice, they often fail to do so with fidelity (Hicks et al., 2020; Labrecque et al., 2013; Latessa et al., 2013).

Finally, the third type of outcome examined in this literature is recidivism. Most often, these evaluations have compared measures of recidivism between the clients supervised by trained and untrained officers. These studies have tended to indicate modest to null reductions in recidivism among those assigned to the trained officer group. For example, Taxman (2008) reported that officer training in the PCS model was associated with lower rates of client re-arrest (30% vs 42%, $p < .05$) and technical violations (35% vs 40%, $p < .10$). In an evaluation of the STICS model, Bonta et al. (2011) concluded that officer training led to a 16% reduction in the new conviction rates of clients ($p < .05$). In a subsequent replication study, Bonta et al. (2019) found no evidence of a statistically significant difference in new convictions between the clients assigned to trained and nontrained officers. Similarly, Latessa et al. (2013) reported nonsignificant effects of officer training in the EPICS model on client reincarcerations, new arrests, and technical violations. Finally, an evaluation of the STARR model indicated there was an 8% decrease in the 1-year recidivism rates among the clients of trained officers relative to those of untrained officers (Robinson et al., 2012). A follow-up investigation with the same sample found that the influence of training on the rates of re-arrest were no longer statistically significant at the .05 level after 2 years (Lowenkamp, Holsinger et al., 2014). A recent meta-analysis synthesized this literature and concluded that officer training was associated with an average 14% reduction in client recidivism (Chadwick et al., 2015).

Another strategy for evaluating program effectiveness in reducing recidivism involves assessing the impact in the type and quality of the CCP skills employed by officers. Bonta et al. (2011, 2019) found that exposure to a cognitive technique during an officer–client STICS contact session significantly reduced one’s risk for a new conviction (differences of 18% and 12%, respectively). Another investigation reported that clients supervised by officers who displayed high-fidelity to the EPICS skills were less likely to be re-incarcerated or arrested for a new offense but were more likely to have received a technical violation than those monitored by low-fidelity officers (Latessa et al., 2013). Similarly, clients supervised by officers who were rated as proficient in the STARR model were less likely to have their probation revoked for a new crime or nondrug-related technical violation but were more likely to be revoked for positive drug test (Hicks et al., 2020).

In summary, community supervision training programs have shown to be an effective strategy for improving the structure and content of the officer–client contact sessions. Research has also suggested that implementation of these models can produce modest effects in reducing recidivism, especially when officers demonstrate an ability to implement the program skills with high quality. The fundamental challenge that remains before probation and parole authorities, therefore, is how to increase officer adherence to the CCPs beyond what is achieved through standard training program regiments alone. Toward this

end, one promising approach is to provide officers with access to on-going booster sessions about program content. Labrecque and Smith (2017), for example, discovered that officers who participated in monthly review sessions following an initial EPICS training continued to increase their proficiency in the use of CCPs over the course of 18 months. It is unknown, however, whether these gains were significant enough to produce any meaningful impacts on recidivism. Therefore, questions remain about what intensity of training may be necessary to produce the most meaningful impact on the compliance of individuals on community supervision.

CURRENT STUDY

Prior scholarship indicates that officer participation in a community supervision training program helps increase their use of CCPs (Bonta et al., 2011, 2019; Labrecque et al., 2013; Latessa et al., 2013; Robinson et al., 2011, 2012; Smith et al., 2012). Research further suggests that officers who demonstrate greater fidelity in their use of CCPs provide the conditions and impart the skills onto their clientele, who in turn are better able to manage their own behavior and engage in less criminal activity (Bonta et al., 2011, 2019; Hicks et al., 2020; Latessa et al., 2013). Nevertheless, regular training in these community supervision models alone has not been shown to increase proficiency and frequency of CCP use for all officers (Bonta et al., 2011, 2019; Labrecque et al., 2013; Latessa et al., 2013; Robinson et al., 2011, 2012; Smith et al., 2012). There are good reasons to suspect that additional educational provisions may be helpful in further increasing the frequency and quality of the skills employed (Labrecque & Smith, 2017), yet outcome comparisons between officers trained under different sets of circumstances remain rare (see however Labrecque et al., 2015; Lowenkamp, Holsinger et al., 2014).

This study seeks to address this gap in knowledge by evaluating the differential impact of officer training dosage in STARR on client outcomes. More specifically, we employed propensity score modeling (PSM) to separately match clients supervised by probation officers who received regular training (i.e., STARR-trained users) and more advanced training (i.e., STARR-trained coaches) to those monitored by officers not trained in STARR. Drawing on the previous literature, we hypothesized that individuals assigned to both treatment groups would be less likely to recidivate during the follow-up period than those in the comparison group. We further expected that the impact of this effect would be more pronounced among the clients of the officers who had more versus less-intense exposure to the STARR model.

METHOD

PARTICIPANTS AND SETTING

This study was conducted in the U.S. Probation Office for the Middle District of Florida (MDFL). The MDFL has five divisional offices and two satellite offices that serve 35 counties in the central region of Florida. The study participants included the 3,282 people who were on active probation in the MDFL between September 1, 2018, and March 1, 2019. Administrative records on these individuals were obtained from the Probation and Pretrial Services Automated Case Tracking System (PACTS). This information was collected through February 29, 2020. There were 99 probation officers who were responsible for

supervising these individuals, including 34 (or 34.3%) who were trained as a STARR user, 24 (or 24.2%) who were trained as STARR coach, and 41 (or 41.4%) who were not trained in STARR.

STARR TRAINING

Officers in the MDFL either volunteered or were recommended by their supervisors to take part in an initial STARR training. All of these individuals participated in a three-and-a-half-day classroom-style training that focused on the theory and evidence supporting the STARR model, including an introduction to the principles of effective intervention. During the training, program facilitators modeled key correctional practices and participants had the opportunity to practice these skills and receive feedback on their performance. After the initial training was completed, officers became certified as STARR users. As part of the departmental policy, users met monthly with an assigned peer coach and participated in booster training sessions once every 2 months.

Certified users were further eligible to be trained as a STARR coach once they demonstrated proficiency in their use of skills and received a recommendation from their supervisor. Officers meeting these two conditions attended a more advanced course on STARR and were taught how to coach users in the application of skills. Coaches were responsible for meeting with their assigned users on a monthly basis, providing users with written and verbal feedback on their performance, and conducting booster sessions to groups of users every other month.

MEASURES

This study sought to assess the impact of probation officer training in STARR on the behavioral outcomes of their clients. The individuals supervised by officers who were trained as STARR users and coaches represented the two treatment groups and those monitored by officers not trained in STARR served as the comparison group. Given the nonrandom nature of the treatment group assignment and the theoretical relevance of personal characteristics on criminal behavior, we employed PSM to separately match both treatment groups to the control group on a wide range of covariates to isolate the effect of officer STARR training status on four dependent variables. These outcome measures included (a) having any positive urinalysis (or drug) test, (b) any violation of one's conditions of probation (i.e., a technical violation), (c) any revocation (or unsuccessful termination) from probation, and (d) any arrest for a new criminal offense during the 1-year follow-up period (1 = *yes*, 0 = *no*).

The use of PSM in the current context is important because this procedure has been shown to reduce potential biases due to confounding variables (Rosenbaum & Rubin, 1983). The covariates used for matching included client gender (1 = *male*, 0 = *female*), race (1 = *white*, 0 = *non-white*), age (measured in years), marital status (1 = *married*, 0 = *not married*), highest educational level (dummy variables for no General Educational Development (GED) or high school diploma, GED or high school diploma, and some college or more), employment status (1 = *employed*, 0 = *not employed*), most serious current offense¹ (dummy variables for drugs, firearms, property, violent, white collar, and other), and risk for recidivism (dummy variables for low-, low/moderate-, moderate-, and high risk).²

TABLE 1: Descriptive Characteristics of the Individuals on Probation (N = 3,282)

Measure	%	<i>n</i>
Probation officer trained as STARR user	34.0	1,117
Probation officer trained as STARR coach	29.6	971
Probation officer not trained in STARR	36.4	1,194
Male	85.0	2,791
White	57.6	1,890
Age ^a	44.8	11.9
Married	22.9	753
Education		
No HS/GED	27.8	914
HS/GED	44.3	1,455
Some college or more	27.8	913
Employed	78.8	2,587
Most serious offense		
Drugs	47.4	1,555
Firearms	7.4	243
Property	4.7	153
Violent	5.0	164
White collar	20.0	658
Other	15.5	509
Risk category		
Low	34.9	1,145
Low-moderate	39.1	1,284
Moderate	15.8	519
High	10.2	334
Positive urinalysis test	8.1	266
Technical violation	16.8	551
Revocation of probation	8.7	286
Arrest for a new crime	5.7	187

Note. STARR = Strategic Training Aimed at Reducing Recidivism; HS/GED = High school or General Educational Development diploma.

^aReported values are mean and standard deviation.

SAMPLE CHARACTERISTICS

Table 1 describes the characteristics of the clients in this study. Approximately 34.0% (or 1,117) were supervised by an officer who was trained as a STARR user, and 29.6% (or 971) were supervised by an officer who was trained as a STARR coach. The remaining 36.4% (or 1,194) were supervised by an officer who was not trained in STARR. The clients in this sample were primarily male (85.0%) and more than half were white (57.6%). The mean age of the sample was 44.8 years old ($SD = 11.9$) and approximately one fifth were married (22.9%). About a quarter of the sample had not received their GED or high school diploma (27.8%) and most were gainfully employed (78.8%). Nearly half the sample was on probation for a drug-related offense (47.4%) and about a third were rated as either moderate or high risk for recidivism (26.0%). During the 1-year observation period, the most frequent outcome observed was a technical violation (16.8%), followed by a revocation of probation (8.7%), a positive urinalysis test (8.1%), and an arrest for a new crime (5.7%).

STATISTICAL ANALYSES

To begin, we compared the characteristics of the clients who were supervised by STARR user and coach-trained probation officers to those who were monitored by officers not trained in the STARR model. We then employed PSM using the one-to-one nearest neighbor method with a caliper to match the clients from both treatment conditions to those in the comparison group.³ Next, we conducted three sets of prematch and postmatch analyses to assess the performance of the matching procedure. First, we calculated the appropriate *t*-test or chi-square statistic for each of the measures and examine the percentage of covariates with statistically significant differences ($p \leq .05$). Second, we calculated the standardized percent bias statistic to assess the degree to which the two sets of treatment and control groups differ on each of the observed constructs.⁴ We focused here on two variants of this measure, including the mean percent bias across all of the measures and percentage of covariates that were greater than or equal to 20%. According to Rosenbaum and Rubin (1985), equivalent groups should not possess any covariates with a percent bias of more than 20%, with lower values representing greater group balance. Third, we calculated the area under the curve (AUC) statistic as a sensitivity check to gauge how well the propensity score predicted placement into the treatment group. The closer an AUC value is to .500, the more it can be said that the propensity score can no longer distinguish between treatment and control cases (Campbell & Labrecque, 2018).

Once matched, we compared the outcomes between the two sets of groups and conducted chi-square tests to identify if any statistically significant differences existed. We further calculated the Phi (ϕ) statistic to assess the magnitude of the relationship between group placement and the dependent measures. In addition, we performed a series of multivariate logistic regression analyses as robustness checks to assess the influence of officer training status on the odds of each of the four dichotomous outcomes while controlling for the other theoretically relevant covariates of criminal behavior.

RESULTS

PREMATCH GROUP COMPARISONS

Tables 2 and 3 compare the characteristics of the clients who were supervised by STARR user and coach-trained probation officers to those who were monitored by untrained officers before and after the PSM matching procedure. As seen in the left-hand side of panel A in both tables, the prematched groups differed substantively across most of the covariates examined. Of particular noteworthiness is that the clients in both treatment conditions were of much greater risk for recidivism relative to those from the comparison group. To illustrate this point, the clients in the STARR user group were half as likely to be low risk and four times more likely to be high risk than those in the untrained group, and the clients in the STARR coach group were nearly three times less likely to be low risk and seven times more likely to be high risk than those in the untrained group. In addition, clients in both treatment groups were more likely to be younger, male, non-white, and less likely to be married and possess a high school or GED diploma than those in the control group. Clients in both STARR-trained groups were also more likely to be on probation for a firearms offense and less likely to be on probation for a white-collar offense. There were little differences detected in the employment status and remaining offense types between the groups in

TABLE 2: STARR User-Trained vs Not-Trained Group Comparisons and Differences in Outcomes

Panel A: Balancing statistics						
Measure	Before PSM (AUC = .700)			After PSM (AUC = .538)		
	User trained %	Not trained %	% STD diff.	User trained %	Not trained %	% STD diff.
Male	85.5	83.4	5.8	84.2*	88.1	11.3
White	53.5**	64.2	21.9	56.6	57.1	1.0
Age ^a	44.1 (11.4)**	46.1 (12.2)	14.3	44.0 (11.3)**	45.6 (11.6)	11.7
Married	21.5**	28.7	16.7	23.9	22.3	3.8
Education						
No HS/GED	29.5**	23.8	12.9	26.1	27.5	3.2
HS/GED	45.3	43.0	4.6	46.2	48.7	5.0
Some college or more	25.2**	33.2	17.7	27.7	23.8	8.9
Employed	79.8	78.5	3.2	79.7	77.4	5.6
Most serious offense						
Drugs	49.5	47.3	4.4	46.9**	55.6	17.5
Firearms	7.4*	5.1	9.5	6.9	6.4	2.0
Property	4.6	5.2	2.8	5.6**	2.8	14.0
Violent	5.6	4.1	7.0	5.9	5.6	1.3
White collar	17.5**	25.4	19.3	19.6	17.0	6.7
Other	15.4	12.9	7.2	15.1	12.6	7.2
Risk category						
Low	23.8**	56.6	71.0	33.9	33.9	0.0
Low-moderate	47.0**	30.9	33.5	43.6	47.1	7.0
Moderate	18.3**	9.8	24.6	17.5	14.9	7.1
High	10.9**	2.7	33.0	5.0	4.1	4.3

Panel B: Differences in outcomes				
	User trained %	Not trained %	χ^2 (1)	ϕ
Prematched	(n = 1,117)	(n = 1,194)		
Any positive urinalysis test	10.7	4.4	34.19**	.122
Any technical violation	20.3	10.9	39.33**	.130
Any revocation of probation	9.1	8.0	1.02	.021
Any arrest for new offense	6.4	4.4	4.53*	.044
Postmatched	(n = 784)	(n = 784)		
Any positive urinalysis test	9.7	6.5	5.36*	.058
Any technical violation	19.1	14.5	5.90*	.061
Any revocation of probation	7.4	10.3	4.18*	-.052
Any arrest for new offense	5.2	6.1	0.06	-.019

Note. STARR = Strategic Training Aimed at Reducing Recidivism; PSM = propensity score matching; AUC = area under the curve statistic; % STD Diff = standardized bias statistic; HS/GED = High school or General Educational Development diploma. ^aReported values are means and standard deviations.

* $p \leq .05$. ** $p \leq .01$.

both comparisons, with the exception that clients in the trained coach condition were more likely to be on probation for an offense type that did not fall into one of the five major categories.

PSM AND ASSESSMENTS OF GROUP BALANCE

These substantive differences made the direct comparison of outcomes between these two sets of groups problematic. Failure to account for these well-known correlates of criminal behavior would inevitably lead to biased results. To address this challenge, we employed

TABLE 3: STARR Coach-Trained vs Not-Trained Group Comparisons and Differences in Outcomes

Panel A: Balancing statistics						
Measure	Before PSM (<i>AUC</i> = .735)			After PSM (<i>AUC</i> = .542)		
	Coach trained %	Not trained %	% STD diff	Coach trained %	Not trained %	% STD diff.
Male	86.5*	83.4	8.7	84.9**	89.5	13.8
White	54.2**	64.2	20.5	54.8	55.3	1.0
Age ^a	44.0 (11.9)**	46.1 (12.2)	14.5	44.4 (11.9)	45.6 (11.7)	8.1
Married	17.5**	28.7	26.8	19.5	20.8	3.2
Education						
No HS/GED	31.0**	23.8	16.2	30.7	28.6	4.6
HS/GED	44.8	43.0	3.6	43.4*	49.8	12.9
Some college or more	24.2**	33.2	20.0	25.9*	21.6	10.1
Employed	78.2	78.5	0.7	80.1	77.1	7.3
Most serious offense						
Drugs	45.0	47.3	4.6	47.5**	57.2	19.5
Firearms	10.2**	5.1	19.3	8.7	6.9	6.7
Property	4.1	5.2	5.2	4.6*	2.6	10.8
Violent	5.5	4.1	6.6	5.4	6.0	2.6
White collar	16.4**	25.4	22.3	19.1*	14.3	12.9
Other	18.8**	12.9	16.2	14.7	13.0	4.9
Risk category						
Low	20.9**	56.6	78.8	28.1	28.3	0.4
Low-moderate	40.2**	30.9	19.5	45.7*	51.1	10.8
Moderate	20.4**	9.8	29.9	21.7**	16.2	14.1
High	18.5**	2.7	53.1	4.4	4.4	0.0

Panel B: Differences in outcomes				
	Coach trained %	Not trained %	χ^2 (1)	ϕ
Prematched	(<i>n</i> = 971)	(<i>n</i> = 1,194)		
Any positive urinalysis test	9.7	4.4	24.15**	.106
Any technical violation	20.0	10.9	34.78**	.127
Any revocation of probation	9.2	8.0	1.01	.022
Any arrest for new offense	6.4	4.4	4.03*	.043
Postmatched	(<i>n</i> = 722)	(<i>n</i> = 722)		
Any positive urinalysis test	7.5	7.1	0.09	.008
Any technical violation	18.0	15.7	1.43	.031
Any revocation of probation	7.9	10.9	3.93*	-.052
Any arrest for new offense	5.7	6.5	0.44	-.017

Note. STARR = Strategic Training Aimed at Reducing Recidivism; PSM = propensity score matching; *AUC* = area under the curve statistic; % STD Diff = standardized bias statistic; HS/GED = High school or General Educational Development diploma.

^aReported values are means and standard deviations.

* $p \leq .05$. ** $p \leq .01$.

a one-to-one PSM matching strategy to establish an equivalent counterfactual comparison group.⁵ This procedure identified 1,568 clients from the STARR user and untrained groups ($n = 768$ per condition) and 1,444 clients from the STARR coach and untrained groups ($n = 722$ per condition) who were much more comparable on these characteristics (see the right-hand side of panel A in Tables 2 and 3).

Although the use of PSM successfully reduced the bias between the two sets of treatment and comparison groups, there were still some measures that retained a statistically significant difference at the .05 level after matching. It is important to emphasize, nevertheless,

that the mean standardized percent bias dropped from 17.2 prematch to 6.5 postmatch in the STARR user group comparison and from 20.4 prematch to 8.0 postmatch in the STARR coach group comparison. The application of PSM further eliminated the presence of any measure with a percent bias of 20 or more. This matching strategy also reduced the AUC values predicting group placement from .700 prematch to .538 postmatch in the STARR user group comparison and from .735 prematch to .542 postmatch in the STARR coach group comparison. In totality, these comparative analyses indicated that we achieved a better group balance through the use of PSM.

OUTCOME ANALYSES

Panel B in Tables 2 and 3 summarize the 1-year outcome findings for the STARR user and coach group comparisons, respectively. The prematch analyses suggested that the clients in both STARR-trained conditions were significantly more likely to have a positive urinalysis test, technical violation of probation, and arrest for a new offense than those in the untrained condition ($p \leq .05$). The magnitude of these relationships ranged from $\phi = .04$ to $.13$. There were no statistically significant or substantively meaningful differences found in the probation revocations of either group comparison.

The postmatch analyses, however, revealed that after adjusting for the influence of confounding variables, the clients in the two treatment conditions were significantly less likely to receive a probation revocation compared to those in the control group ($p = .041$ for user comparison and $p = .047$ for coach comparison). More specifically, the clients of probation officers trained as STARR users and coaches were nearly 40% less likely to have their probation revoked during the follow-up period than those of untrained officers ($\phi = -.05$). In addition, the postmatch analyses suggested that clients supervised by STARR-trained users were significantly more likely to have a positive urinalysis test ($\phi = .06, p = .021$) and receive a technical violation ($\phi = .06, p = .015$). There were no statistically significant differences found in the positive urinalysis tests or technical violations in the STARR-trained coach comparison, or in arrests for a new offense in both sets of group comparisons.

Given the imbalance on some of the covariates following the matching procedure, we conducted a series of additional multivariate logistic regression analyses predicting the four outcomes with the host of independent variables entered as controls (see Tables 4 and 5). Even when accounting for the influence of these covariates, the results were consistent with those derived from the PSM analyses reported above. The clients supervised by officers in both STARR training conditions were approximately 30% less likely to receive a revocation of probation than those monitored by untrained officers. Although the significance level of the treatment condition measure in the STARR coach probation revocation model did not meet the .05 threshold (i.e., $p = .061$), the magnitude of this effect ($OR = .71$) nevertheless remained substantively meaningful. These models also suggested that the clients in the STARR user-trained group were more likely to have a positive urinalysis test and receive a technical violation than those in the untrained group. There was a weak and nonstatistically significant effect detected on these two outcomes in the STARR coach-trained models. Finally, the individuals supervised in both treatment conditions were slightly less likely to be arrested for a new crime than those in the control group ($OR = .84$) although neither effect was found to be statistically significant.

TABLE 4: Logistic Regression Predicting Outcomes Among the STARR User-Trained and Not-Trained Matched Comparison Groups (N = 1,568)

Measure	Positive UA test	Technical violation	Probation revocation	New arrest
STARR-trained user	1.50*	1.31	0.70*	0.84
Male	0.71	0.71	2.19*	0.90
White	1.00	1.02	0.69*	0.97
Age	0.98*	0.98**	1.00	0.97**
Married	0.62	0.67*	1.03	1.08
Education ^a				
GED or diploma	1.52	1.25	1.35	0.75
Some college or more	1.37	1.31	0.99	0.65
Employed	0.96	1.10	1.17	0.96
Most serious offense ^b				
Firearms	2.17**	1.49	2.23**	0.70
Property	1.55	2.01*	1.44	0.58
Violent	0.99	1.14	0.82	0.73
White collar	0.64	1.83**	0.98	0.53
Other	1.01	1.19	1.04	0.30*
Risk category ^c				
Low-moderate	3.23**	2.62**	0.93	2.58*
Moderate	9.67**	5.24**	1.35	4.12**
High	8.00**	4.90**	1.32	8.27**
Constant	0.05**	0.18**	0.04**	0.22*
Model chi-square (<i>df</i>)	107.34 (16)	113.3 (16)	34.07 (16)	60.61 (16)
-2 Log likelihood	774.5	1,308.2	904.8	622.9
Nagelkerke <i>R</i> ²	.154	.117	.048	.107

Note. Reported values are odds ratios. STARR = Strategic Training Aimed at Reducing Recidivism; UA = urinalysis; GED = General Educational Development.

^aReference category is no GED or high school diploma. ^bReference category is drug crime. ^cReference category is low risk.

* $p \leq .05$. ** $p \leq .01$.

DISCUSSION

A growing body of research suggests that officer training in community supervision programs is an effective strategy for reducing client recidivism (Bonta et al., 2011; Chadwick et al., 2015; Robinson et al., 2011; Taxman, 2008). This investigation adds to this literature base by providing mixed support for the effectiveness of officer training in STARR on client outcomes in a federal probation district in Florida. The results of this study indicated that clients supervised by STARR-trained coaches and users had fewer revocations of probation than those monitored by untrained officers. Clients in both treatment groups also had fewer new arrests than those in the control group, although neither difference obtained statistical significance. We also found that technical violations and positive urinalysis tests were more prevalent among the two STARR-trained groups relative to the untrained group, although the differences were only statistically significant in the user and control group comparisons.

IMPLICATIONS FOR POLICY AND RESEARCH

We recognize that it may be somewhat paradoxical for officer training status to produce both benefits and detriments among different indicators of client criminal behavior. In this

TABLE 5: Logistic Regression Predicting Outcomes Among the STARR Coach-Trained and Not-Trained Matched Comparison Groups (N = 1,444)

Measure	Positive UA test	Technical violation	Probation revocation	New arrest
STARR-trained coach	1.05	1.09	0.71	0.84
Male	0.93	0.67**	1.94	1.05
White	1.15	1.09	0.81	0.92
Age	0.99	0.99	0.99	0.96**
Married	0.72	0.38**	0.94	1.14
Education ^a				
GED or diploma	1.50	1.48*	1.19	1.30
Some college or more	1.30	1.39	1.09	1.04
Employed	1.14	1.24	0.85	1.22
Most serious offense ^b				
Firearms	1.99*	1.84*	1.68	0.85
Property	2.55	1.93	1.63	1.81
Violent	0.45	1.28	0.66	1.03
White collar	1.31	1.77**	1.10	0.75
Other	0.54	0.74	0.98	0.52
Risk category ^c				
Low-moderate	8.84**	2.61**	1.26	2.60*
Moderate	24.40**	5.97**	1.04	5.51**
High	38.92**	5.86**	2.17	5.12**
Constant	0.01**	0.11**	0.08**	0.14*
Model chi-square (<i>df</i>)	94.19 (16)	125.71 (16)	22.93 (16)	51.82 (16)
-2 Log likelihood	658.4	1,183.0	878.4	611.1
Nagelkerke <i>R</i> ²	.155	.140	.034	.096

Note. Reported values are odds ratios. STARR = Strategic Training Aimed at Reducing Recidivism; UA = urinalysis; GED = General Educational Development.

^aReference category is no GED or high school diploma. ^bReference category is drug crime. ^cReference category is low risk.

* $p \leq .05$. ** $p \leq .01$.

regard, we make two observations. First, regardless of the intent of any community supervision strategy, when officers work more intensely with clients, it is inevitable that they will detect more violative behaviors (Hyatt & Barnes, 2017; Petersilia & Turner, 1993; Taxman, 2002). Second, whereas revocations of probation and arrests for new crimes require the involvement of other criminal justice professionals (e.g., probation supervisors, police officers, prosecutors, and judges), technical violations and positive urinalysis tests rely more exclusively on officer discretion (Jones & Kerbs, 2007; Wooditch et al., 2016). Although speculative, it is possible that the STARR coaches in this study were trained to be better equipped for dealing with minor rule violations without the need for formal documentation. Our inability to speak more specifically about this issue, however, highlights the need for qualitative research that can explore more directly the influence of officer, prosecutor, and judicial discretion when responding to client rule violations.

The findings of this study suggest there may be some advantages to providing officers with a higher versus lower dosage of training in a community supervision program. Another potentially beneficial strategy is to educate officers in multiple types of services that align with the principles of effective intervention. Although we are not aware of any research that has explored the influence of participation in multiple service types on the use of CCPs, two

studies have demonstrated that officers trained in a community supervision model and motivational interviewing (MI) achieved greater reductions in client recidivism (Labrecque et al., 2015 [EPICS]; Lowenkamp, Holsinger et al., 2014 [STARR]). In addition to the importance of officer fidelity to the CCPs, it is probable that the dosage of intervention received also has an influence on client outcomes. That is, some individuals may require more one-on-one interactions to produce a meaningful impact on recidivism. Prior research suggests that the effective dosage of treatment is risk-dependent, with higher risk clients requiring more-intensive and diverse services than lower risk clients (Bourgon & Armstrong, 2005; Makarios et al., 2014). It is also possible that some clients would necessitate participation in multiple types of services to lower their likelihood for recidivism, such as attendance in cognitive-behavioral treatment group, substance abuse counseling, and STARR interventions. Furthermore, given that clients often have multiple risk factors, there is good reason to suspect that the best outcomes would be achieved when the cluster of programs were tailored to address the specific combination of needs for each client (Taxman & Caudy, 2015). Future research should explore these potential explanations to better identify the mechanisms that support positive outcomes related to the use of community supervision training programs.

LIMITATIONS AND FUTURE DIRECTIONS

Although this evaluation helps advance knowledge about the impact of community supervision officer training programs on client outcomes, readers should exercise caution in interpreting and generalizing these results. There are several limitations to this study that should be understood and addressed in future research evaluations. First, this study makes a critical assumption that officers trained as STARR users and coaches applied these skills in their interactions with their clients and also that they did so equally well. This may or not be the case in reality. Trained officers might apply correctional skills in all, some, or none of their client interactions and variation in the quality of their skill usage most certainly exists. Future scholarship should seek to unpack how often officers apply CCPs in their client contact sessions, how proficient they are in employing these skills, what impact such usage has on client outcomes, and how the type and dosage of training impacts these outcomes.

Second, this investigation involved a nonrandom sample of clients from the caseloads of federal probation officers spread across central Florida. We applied PSM to account for the differences in the available client covariates, but the matches were not perfect and further excluded a significant number of treatment cases. We applied multivariate logistic regressions as robustness checks on our results and the findings across both strategies were substantively similar. Although the use of PSM and regression provide convergent validity of our study findings, future research should further explore additional ways to make use of a wider array of data, including the use of more cases and additional covariates for matching or the use of hierarchical liner modeling (HLM) to control for both officer and client characteristics.

Third, our study did not account for other potentially meaningful differences in officer education, alternative trainings, or other abilities. It could be that prior educational or employment experiences as well as training in other areas, such as MI, increase an officer's ability to effectively use CCPs or that there is a specific combination of experiences that

produce the best results. We also did not have information about other types of services and programs that clients received. It could be, for example, that STARR works well in conjunction with other rehabilitative programs and services. Again, more research is needed to assess for these possibilities.

Fourth, it may be that the best results are achieved through a specific combination of client, officer, and situational characteristics. Due to data limitations, we were unable to test for these potentially meaningful interaction effects. We encourage future research to explore these possibilities. Finally, it is possible that STARR may have a differential effect at different time intervals and with different specifications of the outcome variables. These possibilities should also be explored. Despite these limitations, the results of this study support the continued use of STARR and the further highlight the need for more research on community supervision officer training programs.

CONCLUSION

This study adds to a growing body of research in support of the effectiveness of community supervision officer training programs. While the results of this study were mixed, the reduction in probation revocations and arrests for new crimes found among the STARR-trained groups is a promising sign. Given that the cost of implementing STARR is minimal, this study, along with others on similar training programs, suggest that officer training is a feasible way to effectively translate the principles of effective intervention into front-line practice while also having a meaningful impact on client outcomes. More research, however, is deeply needed in this area to identify the best strategies for increasing officer use and proficiency in the CCPs and for determining what combination of training dosage and additional intervention strategies are best able to achieve optimal client outcomes.

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NOTES

1. Offense types were coded using the guidelines for the classification of federal offenses from the Pew Research Center (see Appendix A in Lopez & Light, 2009).
2. Risk classifications were determined using the most recent Post Conviction Risk Assessment (PCRA) 2.0 for each individual at the start of the study. Due to the small percentage of clients scoring as very high risk for recidivism ($\approx 1\%$), we combined high and very high risk into one category.
3. The caliper was determined by multiplying the standard deviation of the propensity score by .25 (see Rosenbaum & Rubin, 1985).
4. We calculated the standardized percent bias using Austin's (2011) two formulas for continuous and dichotomous measures.
5. As an ancillary analysis, we conducted a series of logistic regression models predicting the four outcomes with the full sample (not shown) and the findings were substantively similar to those presented here.

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