

Psychology, Public Policy, and Law

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Online First Publication, April 2, 2020. <http://dx.doi.org/10.1037/law0000235>

CITATION

Schwalbe, C. S. J., & Koetzle, D. (2020, April 2). Condition Comprehension Predicts Compliance for Adolescents Under Probation Supervision. *Psychology, Public Policy, and Law*. Advance online publication. <http://dx.doi.org/10.1037/law0000235>

Condition Comprehension Predicts Compliance for Adolescents Under Probation Supervision

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Noncompliance is a chronic problem among youth court ordered to probation supervision, often placing them in jeopardy of deeper involvement with the juvenile justice system. Legal comprehension theory and goal setting theory suggests that youth understanding of their probation requirements may predict compliance. This study explored the effect of condition comprehension on short-term compliance with probation requirements in a sample of probation youths ($n = 101$). Results of the multilevel logistic regression analysis demonstrated that youth with a detailed understanding of their conditions were more likely to comply with probation requirements, but that this effect was moderated by age and by emotion regulation. Understanding was not related to compliance for youth younger than 14 and for youth who scored low on a measure of emotion regulation. Results of this study provide support for efforts by probation departments to foster youth comprehension of their conditions, and reveal the need to establish probation strategies suited to younger youth and youth with poor emotion regulation.

Keywords: probation, juvenile justice, comprehension, compliance

Most youth on probation fail to abide by the rules and standards imposed by the courts, with some estimates suggesting as many as 80% of probation youth in the United States fail (Leiber & Peck, 2013). This means that many youths continue to skip school, violate curfew, use drugs, or are rearrested while on supervision. In addition, they often fail to abide by technical requirements such as attending probation meetings and participating in psychosocial programs. This failure to comply is salient because, at a certain point, legal jeopardy for noncompliant youth increases as courts overwhelmingly respond to noncompliance with punitive, rather than treatment-oriented, sanctions (Bechtold, Monahan, Wakefield, & Cauffman, 2015; NeMoyer, Brooks Holliday, Goldstein, & McKitten, 2016). Given the negative impact of legal punishment on the long-term developmental outcomes for justice-involved youth (Gatti, Tremblay, & Vitaro, 2009; Ryan, Abrams, & Huang, 2014), fostering youths' cooperation with probation conditions remains a longstanding challenge.

This study opens a new avenue for research into the compliance of court-involved youth. It explores how youth understanding of probation conditions affects compliance, under the assumption that youth with a richer and more sophisticated understanding of their

probation-imposed requirements will be more likely to comply. It further explores how adolescent developmental characteristics and attitudes about probation affect compliance. In the end, this study seeks to provide guidance to probation programs and the courts in their efforts to improve behavioral outcomes for adolescents in the juvenile justice system.

Conditions and Compliance

Youth on probation are often subject to a wide range of court-imposed conditions. NeMoyer and colleagues (2014) found that youth in one urban jurisdiction ($N = 120$) were ordered to one or more of 29 different probation conditions ($M = 3.00$, $SD = 1.83$). The most common probation conditions were: school attendance (68%), drug screens (68%), treatment programs (44%), and curfew (43%). Fifty-two percent of youth failed to comply with their conditions at least once, and 48%, nearly half, were given an institutional placement following a period of continued noncompliance.

Current research suggests probation compliance, or noncompliance, among juveniles can be attributed to a number of factors. First, a growing body of research focuses on parental competencies and engagement. Although parental competencies like monitoring, emotional/instrumental support, and parental efficacy are all positively associated with youth compliance (Alarid, Montemayor, & Dannhaus, 2012; Cook & Gordon, 2012; Vidal & Woolard, 2017), the impact of parental engagement with probation is less clear. Though some have found parental engagement increases compliance, others have suggested that greater parental engagement with probation may actually increase noncompliance (Alarid et al., 2012; Maschi, Schwalbe, & Ristow, 2013).

Second, race has been examined in several studies with mixed results. There is some evidence to suggest African American

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A version of this paper was presented at the Society for Social Work in Research Conference (January, 2020). This study was supported by a grant from the W. T. Grant Foundation Scholars' program (Grant 9916).

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youths are more likely to have noncompliance recorded in case notes (see NeMoyer et al., 2014; Smith, Rodriguez, & Zatz, 2009). However, these were both modest-sized studies from highly localized jurisdictions ($N = 120$ and $N = 316$, respectively) and other studies with larger multistate samples of youth failed to detect disproportionality in technical violations and probation and court decision making (Bechtold et al., 2015; Leiber & Peck, 2013). Importantly, NeMoyer and colleagues (2014); Leiber and Peck (2013), and Bechtold and colleagues (2015) all found that probation violations tended to result in punitive rather than treatment-oriented sanctions for all youth, regardless of race, upon adjudication of probation violations.

Finally, characteristics of probation strategies have also been examined, again with mixed results. NeMoyer and colleagues (2014) found different types of probation conditions were associated with different outcomes, but that the total number of conditions were unrelated to compliance. For instance, drug-related conditions (e.g., mandated drug testing, drug abuse treatment) predicted lower rates of compliance compared to other types of conditions. Vidal and Woolard (2017) found that youth perceptions of probation officer toughness (e.g., expectation that probation officer is looking for ways to punish the youth) was associated with increased compliance problems. However, other studies failed to find that the nature of the youth–probation officer interactions were related to youth compliance (Vidal & Woolard, 2017).

The literature on probation compliance among court-involved youth addresses a narrow range of factors, with little to no research describing how probation processes themselves affect compliance. Probation officers are expected to use supportive interpersonal strategies and a variety of casework techniques, including aversive consequences, to promote youth compliance with probation expectations (Schwalbe, 2012). Yet there is little data to describe how these efforts affect compliance, and less about how youths' understanding of probation conditions contributes to their success and failure. The current study seeks to fill these gaps.

Condition Comprehension

This study tests the hypothesis that adolescent understanding of their probation conditions, what we call condition comprehension, will influence their short-term compliance.

Our multidimensional definition of condition comprehension draws on traditional legal standards for adjudicatory competence and the literature on adherence to medical and psychosocial treatments (Appelbaum & Grisso, 1988; Bonnie, 1992; Rogers et al., 2016). Condition comprehension is conceptualized here as (a) factual knowledge about probation conditions, (b) reasoning about the costs and benefits of compliance, and (c) appreciation of the long-term importance of condition compliance. While all three dimensions are important as discussed below, the current study focuses on the first dimension and the relationship between knowledge of probation conditions and compliance.

Exploring the relationship between condition comprehension and compliance is important given the consequences associated with noncompliance. Youth who fail to abide by case plan and probation conditions can be returned to court for additional sanctions, including the possibility of revocation. Adolescents who fail to understand their probation conditions, or whose understanding

is incomplete, may be at increased risk of probation violations and increasingly punitive sanctions. Arguably, probation officers should engage in practices designed to increase youth compliance and successful outcomes. Thus, a test of whether or not condition comprehension predicts probation compliance is relevant for both theory and practice.

Figure 1 presents the conceptual framework underlying this study. It predicts that adolescent comprehension of their conditions will promote compliance under a limited set of developmental and structural conditions. Overall, comprehension should predict compliance because high comprehension adolescents will know that they are required to follow rules at home and school, avoid drugs and maintain sobriety, refrain from illegal behavior, report regularly to their probation officer, and participate in psychosocial programs. They will recognize the rewards and benefits that will accrue to them when they are compliant and will understand the consequences when their noncompliance is detected. Moreover, they will understand and appreciate the long-term benefits of complying with probation conditions. Each element of comprehension—knowledge, reasoning, and appreciation—is expected help youth make choices in favor of compliance when, during the course of their day-to-day lives, circumstances conspire to otherwise encourage or incentivize noncompliance.

To our knowledge, the extent and impact of condition comprehension has not been explored in probation youth. However, research on adherence to medical and psychosocial interventions provides indirect support for the hypothesis that condition comprehension predicts compliance. As with probation, estimates of medical adherence are generally low (DiMatteo, 1994; DiMatteo, Giordani, Lepper, & Croghan, 2002; Martin, Williams, Haskard, & DiMatteo, 2005; Murphy & Coster, 1997). Nonadherence has been attributed to many factors including a lack of understanding or recall of medical advice, a failure to prioritize the medical directives over other life activities, a lack of understanding about the seriousness of the illness, and a failure to appreciate the benefits of the prescribed treatments, among others (Bond, Aiken, & Somerville, 1992; Dong, Lee, & Harvey, 2017; La Greca & Bearman, 2003; Vermeire, Hearnshaw, Van Royen, & Denekens, 2001). Moreover, the failure to recall medical advice is generally attributed to the volume and type of information provided to patients by providers, the emotional state of the patient at the time of receiving advice, the perceived importance of the information, and the method for providing advice (Kessels, 2003; Vermeire et al., 2001; Watson & McKinstry, 2009). Recall of treatment plans, and subsequently adherence, is improved when information is provided in simple and direct terms, when patients are feeling motivated rather than agitated or highly stressed, and when verbal directives are

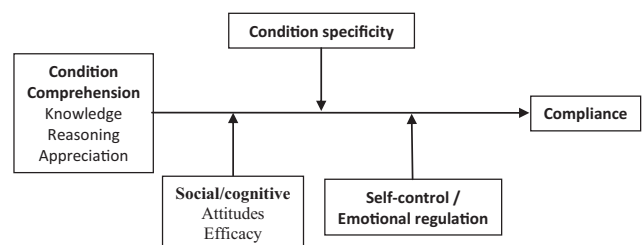


Figure 1. Integrated model of condition comprehension.

accompanied by written instructions, including visual cues (Dong et al., 2017; Vermeire et al., 2001; Watson & McKinstry, 2009). Providing information under these conditions helps to ensure that the advice is encoded more accurately, thereby increasing the accuracy of recall and subsequent adherence.

Among the moderators of the comprehension–compliance association posited in Figure 1 is the specificity with which adolescents can recall their conditions. Across numerous settings, research into adolescent goal setting demonstrates that people are motivated to attain behavioral goals that are described with specificity rather than in vague terms. Moreover, this association holds whether goals are internally driven or externally imposed (Latham & Locke, 2006). Though delinquent adolescents tend to hold less specific goals than nondelinquent adolescents (Carroll, Gordon, Haynes, & Houghton, 2013; Massey, Gebhardt, & Garnefski, 2008), goal-setting interventions for delinquent youth that emphasize behavioral goal specificity have shown positive effects on problem solving, emotional control, and delinquency (Belciug, Franklin, Bolton, Jordan, & Lehmann, 2016; Frick, 2001). For adolescents on probation, many if not most of their probation conditions act as proxies of behavioral goals. For instance, the condition to abide by curfew easily translates into goal language (e.g., “to be home before 8 p.m. on school nights”). Thus, conditions that adolescents can recall with higher levels of specificity are likely to promote follow-through, engagement, and ultimately compliance.

Adolescent attitudes and beliefs about probation conditions should also influence the salience of condition comprehension (see Figure 1). Social–cognitive theories of motivation point to a variety of attitudes and beliefs that influence decision making and behavior (Fishbein & Ajzen, 2015; Lorenzo-Blanco et al., 2016; Morrison, Golder, Keller, & Gillmore, 2002). Among them, two stand as potential moderators of the comprehension–compliance association: attitudes about the importance of their probation conditions and self-efficacy beliefs. Adolescent attitudes about probation conditions, whether favorable or unfavorable, reflect the value that they attach to their conditions as they understand them. In general, motivation toward a goal is strengthened when people value the goal (Epton, Currie, & Armitage, 2017). In the present context, adolescents who believe that following their probation conditions is a good idea should be more likely to comply. Similarly, self-efficacy beliefs reflecting confidence in an adolescent’s ability to comply with probation conditions should activate increased motivation to cooperate, whereas low self-efficacy beliefs should dampen motivation as low-confidence adolescents are likely to adopt a fatalistic posture toward their conditions. According to our framework, favorable attitudes and self-efficacy beliefs should enable condition comprehension to have its intended effect on compliance; unfavorable attitudes and low self-efficacy beliefs should dampen the effect of condition comprehension on compliance.

Developmental factors, too, should influence the comprehension–compliance association (see Figure 1). In particular, the development of emotional regulation and self-control during the course of adolescence is likely a key moderator. Research in adolescent development over the past 20 years has established an age-graded pattern of increasing emotional control in decision making beginning in early adolescence and continuing into the early 20s (Caffman & Steinberg, 2000; Icenogle et al., 2019; Smetana, Campione-Barr, & Metzger, 2006; Steinberg, 2008; Steinberg et al., 2018). During periods of

relatively lower emotional regulation, adolescent emotional arousal and reward sensitivity create a context that favors risk taking and rule breaking, especially when in the presence of peers (Pharo, Sim, Graham, Gross, & Hayne, 2011). In general, older adolescents develop stronger internal controls that enable them to delay gratification and to make decisions that are aligned with longer-term goals, exactly the processes needed to make condition comprehension salient to adolescent decision making.

This developmental dynamic has particular relevance for the probation context, where the settings in which adolescents comply with their conditions (e.g., home, school, community) are almost always separated from the condition-imposing authority (i.e., court and probation officer) to which they are accountable. The challenges of common probation conditions like school attendance illustrates this dynamic. For many probation youth, the school setting can be difficult and unrewarding as a consequence of adolescent learning challenges, home–school conflict, and racial/ethnic biases. The requirement to attend school on time every day, which is conveyed during relatively brief encounters in courtrooms and probation offices is in daily competition with the negative expectations that many adolescents hold about their school experience (e.g., conflict with teachers, poor grades), and the positive rewards they may perceive from alternatives (e.g., more sleep or free time). Countering these moment-to-moment contingencies that conspire against probation compliance may be the quintessential challenge of probation with adolescents who are in conflict with the law.

In sum, the theoretical framework developed for this study suggests the following hypotheses for the relationship between condition comprehension and probation compliance and noncompliance for adolescents:

Hypothesis 1: Condition comprehension will predict probation compliance among probation adolescents.

Hypothesis 2: The effect of condition comprehension on compliance will be strengthened when adolescents can recall their conditions with greater specificity.

Hypothesis 3: The effect of condition comprehension will be strengthened when their attitudes toward probation and self-efficacy beliefs are supportive of probation.

Hypothesis 4: The effect of condition comprehension on compliance will be greater for older adolescents and for adolescents who have stronger emotion regulation capacity.

Current Study

The current study explored one aspect of the condition comprehension framework we presented above—condition knowledge—and its associated interactions with knowledge specificity, youth attitudes and efficacy, and emotional regulation. Adolescents on probation were administered a condition recall task, along with self-reported measures of attitudes and efficacy beliefs about probation. Parents completed measures of adolescent emotion regulation. Adolescent compliance behaviors (i.e., curfew, home conflict, drug use, school attendance, program attendance, probation reporting, rearrest) were obtained through a review of probation case files. Together, these data provided an opportunity to conduct

an initial, if partial, test of the condition comprehension framework, along with an analysis of interactions to explore how characteristics of adolescent knowledge, their attitudes and perceptions about probation, and their developmental status, affect adolescent compliance. Results of this study were intended to provide practical guidance to probation officers to more effectively engage adolescents toward greater success and to open a new avenue to study success and failure of youths on probation.

Method

Data for the current study were collected as part of the Social Processes in Probation study (SPPS; Schwalbe, 2019). The SPPS sought to identify predictors of success and failure for juvenile probation. The study was conducted in an urban probation department on the East Coast of the United States. Eligible youth included those on intensive probation supervision or general supervision. Intensive supervision youth had probation appointments 3 to 5 days per week, whereas general probation youth had meetings as often as once per week or as little as once per month. For both groups, probation services included monitoring and sanctions, referrals to outside programs and services, and supportive counseling. In addition, youth were expected to abide by general conditions of probation. These conditions reflect behaviors in six domains (probation officer reporting and directives, following parental directives, school attendance and rule following, follow state and federal laws, avoid illegal drugs, participate in psychosocial programs as directed by the probation officer). Typically, these conditions were reviewed at the first probation meeting when youth were given, and signed, a copy of their general conditions.

Sample

Probation adolescents were recruited to the study from juvenile court and probation waiting rooms from May, 2012 through May, 2013. In total, 253 youths were approached to participate and 155 (61%) assented to participate in the study and received parental consent and permission. The current sample consists of a subsample of 101 youths who completed a condition recall task. The sample was predominantly male (76%), African American (79%), and 15 years old ($M = 15.2$, $SD = 1.21$; see Table 1). Thirty-nine percent were ordered to intensive probation supervision; the remainder to general supervision. The median adolescent had been on probation supervision for 42 days at recruitment ($M = 87$ days, $SD = 119$). Bivariate analyses were conducted to assess whether participants who completed the condition recall task ($n = 101$) differed from those who did not ($n = 54$); these groups did not differ in demographic characteristics (age, gender, race), time on probation, nor in psychosocial characteristics (risk scale, described below).

Procedure

Over the course of the original study, youth were asked to complete a number of surveys. Three surveys are included in the current study: the youth background survey; the youth probation attitudes and experience survey comprising attitudes, values, and beliefs related to probation; and the parent background survey. On average, adolescents were on probation for approximately 3

Table 1
Descriptive Statistics

Variables	Statistics
Demographic characteristics	
Age (M , SD)	15.2 (1.21)
Female (n , %)	24 (24%)
African American (n , %)	80 (79%)
Legal characteristics	
Felony (n , %)	53 (54%)
ESP probation (n , %)	39 (39%)
Risk scale (M , SD)	
Prior offenses (n , %)	34 (34%)
Age first offense < 14 (n , %)	20 (20%)
Behavior problems at home (n , %)	43 (45%)
Fail school subjects (n , %)	57 (59%)
Anger (n , %)	39 (40%)
Negative peers (n , %)	64 (66%)
Drug use (n , %)	52 (54%)
3-Month compliance problems (M , SD)	
Curfew (n , %)	31 (31%)
Home problems (n , %)	43 (43%)
School attendance (n , %)	63 (62%)
Missed reporting (n , %)	21 (21%)
Program noncompliance (n , %)	27 (27%)
Drug use (n , %)	21 (21%)
Rearrest (n , %)	22 (22%)

Note. ESP = enhanced supervision probation.

months at the time of completing the youth background survey ($M = 105$ days, $SD = 126.1$, *median* = 53 days) and parent background survey ($M = 95$ days, $SD = 110.5$, *median* = 55 days) and 4 months when completing the probation attitudes and experience survey ($M = 126$ days, $SD = 116$, *median* = 91 days). Surveys were completed in private offices adjacent to the probation waiting room and participation was incentivized through gift cards for each survey completed.

During the probation attitudes and experience survey, youths completed a condition recall task, whereby they were asked to report on their probation conditions. Youth responded to three open-ended questions that were recorded verbatim by research assistants administering the survey: (a) what are your probation conditions? (b) Do your probation conditions include attending family therapy, a counseling program, treatment, or other social program? (c) What are you currently doing to achieve a successful probation outcome? Research assistants were told that the purpose of the recall exercise is to record participants' recollection of their conditions and were instructed to limit their prompts to a single query about completeness (i.e., "is there anything else?"). They did not specifically ask participants to elaborate on their conditions or increase the specificity of their descriptions. The first author coded condition characteristics from the youth responses. The second author coded 20% of youth responses. Agreement was greater than 90%.

The department provided predisposition investigation reports and probation case notes for all study youth through September 2014. In this district, investigation reports include a record of youths' legal history, circumstances surrounding the presenting offense, and a narrative psychosocial history. Case notes include records of direct meetings with youth, their parents and caregivers, and a range of collateral contacts including schools and services

providers, and monthly record checks to confirm school absences and police arrest. Research assistants utilized standard coding systems to extract information from investigation reports regarding youth offending histories and risk and need profiles, and to extract information from case notes about youth compliance behaviors. Separate teams of research assistants double coded 20% of the investigation reports and case notes to assure reliability. Reliability estimates for variables included in this study range from $k = .60-.86$. Because we expected that condition knowledge will influence proximal outcomes, data about youth compliance were restricted to 3 months prior to the recall task (prerecall period) and 3 months following the recall task (postrecall period).

Measures

Noncompliance. Youth noncompliance was coded from probation case notes yielding compliance counts in seven categories: *curfew violation* (coded whenever the note indicated that the youth was away from home past curfew imposed by either the parent or probation officer; $\kappa = .75$; $M = .50$, $SD = 1.13$), *home conflict* (coded whenever the note indicated problems with rule following or conflict at home, other than curfew, $\kappa = .71$; $M = .88$, $SD = 1.61$), *drug use* (coded whenever the note indicated either a failed drug test or an admission by the youth of drug use or report by parents of confirmed drug use; $\kappa = .72$; $M = .58$, $SD = 1.21$), *school attendance* (coded whenever the case note indicated that the youth either skipped classes or skipped school without an excuse; $\kappa = .81$; $M = 1.89$, $SD = 2.65$), *program participation* (coded whenever the note indicated that the youth missed attendance at a required, nonschool program like counseling or treatment; $\kappa = .60$; $M = .27$, $SD = .44$), *probation reporting* (coded whenever the note indicated that the youth missed a probation appointment; $\kappa = .71$; $M = .96$, $SD = 1.33$), and *rearrest* (coded whenever notes indicated a new arrest; $M = .27$, $SD = .68$). To create indicators of noncompliance that omitted trivial rule violations, noncompliance counts were dichotomized at the 75th percentile as follows: curfew (1 or more case notes), home conflict (2 or more case notes), drug use (1 or more case notes), school attendance (2 or more case notes), program participation (1 or more case notes), probation reporting (3 or more case notes), and rearrest (1 or more case notes).

Condition characteristics. Conditions recalled by youths in the recall task were coded by the first author for content knowledge, percent of general conditions recalled, and specificity. *Content* categories were derived inductively from participant responses, yielding 10 mutually exclusive categories: curfew, other home behavior, school attendance, other school behavior, avoid trouble (e.g., police contact), drug use, probation reporting, following probation directives, program attendance, and other. These categories corresponded closely to the six general condition categories described above. *Percent recalled* was calculated for each participant as the total number of general condition categories represented in the adolescent recall divided by the total number of general condition categories. For example, the content categories of curfew and other home behaviors corresponded to the general condition that adolescents follow parental directives. *Achievement* was coded when conditions specified the behavior or state to achieve (e.g., “abide by curfew”), whereas *avoidance* conditions indicated the behavior or state to avoid (e.g., “stay away from

police contact”). *Behavioral* conditions were coded when conditions were elaborated according to specific actions that could in theory be observed (e.g., “attend school every day), while *general* conditions were nonspecific (e.g., “be better at school”) or overgeneralized pat responses (e.g., “go to school”).

Attitudes and beliefs. The study included two individual questions and one multi-item scale scales measuring attitudes and beliefs predicted by our model to influence youth compliance. Two questions measuring general attitudes toward probation conditions measured the perceived importance of probation conditions (“staying out of trouble is important to me,” and “following probation conditions is a good idea”). Participants responded to both on a 7-point scale ranging from *completely disagree* to *completely agree*. The *probation efficacy* scale was a project-derived scale to measure youth confidence in completing the requirements of probation (7 items; $\alpha = .77$; e.g., “I have the ability to complete my probation conditions”).

Emotional regulation. Two indicators of emotional regulation and self-control were measured in this study. The lability subscale of the parent-reported Emotion Regulation Questionnaire (ERQ) measured emotionality and anger control (14 items; $\alpha = .88$; e.g., “my child is easily frustrated,” Shields & Cicchetti, 1997). The youth-reported Psychological Reactance Scale measured emotionality when youths were subjected to limits (9 items; $\alpha = .74$; e.g., “I find that I often have to question authority,” Miller, Burgoon, Grandpre, & Alvaro, 2006).

Background variables. Adolescent age at probation intake, youth gender, and race/ethnicity were coded from predisposition reports. Predisposition reports also provided data for a cumulative *risk scale* (prior arrests, age at first arrest younger than 14, home behavior problems, failed school subjects, drug use, anger control, negative peers).

Analysis

The analysis considered the short-term association of condition recall characteristics on youth compliance in seven areas: curfew, home behavior, drug use, school attendance, probation reporting, program participation, and rearrest. The follow-up period was constructed using the date of the condition recall task as the focal point, with compliance measured 3 months prior to the recall date comprising the prerecall period, and 3 months following the recall date comprising the postrecall period. Multilevel logistic regression models were estimated to examine condition recall characteristics on youth compliance in the 3-month postrecall follow-up, with the seven compliance indicators clustered within youths. We used Stata (Version 15) to estimate the following model:

$$\text{Log-Odds}(\text{Compliance}_{ij}) = \beta_{00} + \beta_{1j}(\text{MatchedCondition}_j) + \beta_{kj}X_i + \mu_{0j}$$

where the log odds of compliance problem j for person i is a function of whether or not compliance problem j was matched to a condition for the j th compliance area. For example, youths who described conditions related to school attendance and probation reporting would have a matched condition to both school attendance and probation reporting outcomes (i.e., $\text{MatchedCondition} = 1$), but not to curfew, home behavior, drug use, program attendance, and rearrest (i.e., $\text{MatchedCondition} = 0$). Thus, the

models were designed to test whether or not matched conditions and their characteristics were associated with youth compliance. All continuous variables included in these analyses were grand mean centered to lend interpretability to the constant term.

Missing Data

Because the study design depended upon interviews with youths when they appeared at the probation department for regularly scheduled meetings with their probation officers, attrition from the study was expected. Ninety-eight youths completed the background survey including the psychological reactance scale, and 83 parents completed the parent background survey containing the emotion regulation checklist.

Multiple imputation (MI) was selected to impute emotion regulation checklist scores using chained equations (Allison, 2002; Schafer & Graham, 2002). Ordinarily, the quality of MI depends on random patterns of missing data, with biased imputations occurring when missingness mechanisms depart from random processes (usually designated as missing at random [MAR]). However, MI is robust to modest departures from the MAR assumption, and in any case result in less biased estimates than listwise deletion, which depends on highly restrictive missing completely at random (MCAR) assumptions (Schafer & Graham, 2002). Moreover, experience shows that imputations are unbiased when non-random missingness mechanisms are statistically controlled in the imputation models through the use of auxiliary variables (Collins, Schafer, & Kam, 2001).

The imputation models developed for this study included all analyses variables, indicator variables for nonrandom missingness mechanisms (i.e., placement/absconding/discontinue), and an indicator for end-of-probation success or failure (Schwalbe, 2019). Fifteen imputations were chosen to assure reproducibility of the imputations using guidelines presented by White, Royston, and Wood (2011).

Results

Table 1 presents the characteristics of participating youth. The typical youth was 15 years old, male, and African American. About half of the youth were on probation for a felony offense (54%), and about a third were supervised in the enhanced supervision program (39%). The average youth had three risk factors at probation intake, with the most common risk factors being negative peers (66%), failed school subjects during the past year (59%), and drug use during the past year (54%). Finally, the average youth had 2.3 compliance problems recorded in probation case notes during the 3-month follow-up period. Total risk scale scores were correlated with 3-month compliance problems ($r = .48$); age, race, gender, offense type, and probation type were uncorrelated with 3-month compliance problems.

Table 2 presents characteristics of the conditions as recalled by youth. In total, the average youth reported 3.6 court conditions (median = 3, range: 1–8), with 2.3 classified as specific in the achievement/avoidance dimension and 1.8 classified as specific in the behavioral/general dimension. The most common condition type recalled was in the trouble category (61%), followed by program participation (55%), reporting (49%), curfew (57%), and school attendance (45%). Considering condition specificity, the

Table 2
Condition Recall Characteristics

Condition recall	Total	Condition specificity	
		Achievement	Behavioral
Total recall (<i>M, SD</i>)	3.6 (1.47)	2.3 (1.10)	1.8 (1.22)
Curfew (<i>n, %</i>)	47 (47%)	47 (100%)	25 (53%)
Home behavior (<i>n, %</i>)	17 (17%)	15 (88%)	14 (82%)
School attendance (<i>n, %</i>)	45 (45%)	44 (98%)	18 (39%)
Reporting (<i>n, %</i>)	49 (49%)	48 (98%)	32 (65%)
Program participation (<i>n, %</i>)	55 (55%)	55 (100%)	45 (82%)
Drug use (<i>n, %</i>)	28 (28%)	6 (21%)	15 (54%)
Trouble/rearrest (<i>n, %</i>)	61 (61%)	4 (7%)	27 (79%)
Other (<i>n, %</i>)	17 (17%)	12 (71%)	9 (53%)

lack of variation in achievement/avoidance ratings is striking. Four condition categories were by definition classified as achievement conditions, including curfew, program participation, reporting, and school attendance. These condition categories had distributions of achievement conditions at or near 100%. Contrariwise, nearly all conditions in the trouble category (93%), and a large majority in the drug use category (79%), were characterized by avoidance. The low level of variation in the distribution of achievement/avoidance conditions confounded further analysis of this variable and so it was dropped from further consideration.

The multivariate modeling process was initiated with the estimation of multilevel logistic regression models. All models predict the odds of noncompliance in the 3-month postrecall period. Among youth characteristics (age, gender, race, risk level), only race and risk level were significant and retained in the model. Additionally, all models controlled for noncompliance in the 3 months preceding the condition recall task, days under probation supervision prior to the condition recall task, and for the total number of probation contacts during the study period to control for differential levels of surveillance.

Table 3 presents models testing the direct effects of matched conditions on 3-month compliance and its interaction with behavioral specificity. A pattern across all models presented in Table 3 are for statistically significant relationships between compliance and race and the cumulative risk scale, where African American youths and higher risk youths both have higher rates of compliance problems across seven compliance indicators. Percent of general conditions recalled was not significant in any model. Our initial analysis found that matched conditions also did not predict compliance problems as expected (Table 3, Model 1; $\beta = -.18, p > .05$). Further exploration of this finding in one-level logistic regression models (not shown) found that condition recall was unrelated to arrest ($\beta = .38, p = .52$) and that condition recall was associated with a higher likelihood of drug use ($\beta = 1.40, OR = 4.05, p = .03$). When drug use and rearrest were omitted from the modeling process (Table 3, Model 2), youth recall of matched conditions did predict reductions in noncompliance for the remaining five outcomes ($OR = .60, p < .05$). When an indicator for behavioral conditions was added (Table 3, Model 3), the estimate for matched condition recall became nonsignificant, while the effect of behavioral conditions was associated with a large statistically significant reduction in noncompliance ($OR = .48, p < .05$). Interactions of behavioral conditions with gender, race, and risk were not significant.

Table 3
Multilevel Logistic Regression of Compliance on Condition Recall Characteristics

Variables	Model 1 ^a	Model 2 ^b	Model 3 ^b
	β (se)	β (se)	β (se)
Constant	-1.39 (.26)***	-1.15 (.31)*	-1.12 (.31)***
Supervision (centered)	.01 (.00)***	.01 (.00)***	.01 (.00)***
Days under supervision (centered)	-.00 (.00)*	-.00 (.00)*	-.00 (.00)*
Prior compliance (centered)	1.41 (.21)***	1.64 (.26)***	1.62 (.27)***
African American	.69 (.27)*	.79 (.33)*	.74 (.34)*
Risk scale (centered)	.16 (.06)*	.16 (.08)*	.16 (.08)*
% Condition recall (centered)	.62 (.60)	1.11 (.74)	1.05 (.75)
Matched condition	-.18 (.20)	-.51 (.24)*	-.06 (.33)
Behavioral condition			-.73 (.37)*
Random effects	.11 (.15)	.28 (.24)	.33 (.26)
Wald (df)	106.58 (7)***	77.57 (7)***	77.82 (8)

^a Seven compliance indicators: curfew, home problems, school attendance, program attendance, probation attendance, drug use, rearrest. ^b Five compliance indicators: curfew, home problems, school attendance, program attendance, probation attendance.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Next, we tested the interaction of behavioral conditions and prerecall noncompliance to ascertain whether the effect of behavioral conditions was specific to youths who were noncompliant in the prerecall period. Results of this analysis are shown in Table 4. Indicator variables for all combinations of prerecall noncompliance and behavioral/general conditions were included, with the comparison group defined as no compliance problems/no matched conditions. Youth with the greatest odds of postrecall noncompliance relative to the reference category had prior compliance problems but recalled neither behavioral nor general conditions ($OR = 7.36, p < .001$), followed by youths with previous compliance problems who recalled general conditions ($OR = 4.64, p < .01$). The category of prior noncompliance plus behavioral conditions was also associated with postrecall noncompliance ($OR = 2.19, p < .10$). However, this association was at a marginal level of significance compared to the reference category, and at a level that was smaller than the prior compliance/no condition group ($p =$

.007). It was not statistically different from the prior compliance/general condition group ($p = .15$).

Finally, we tested the effects of social-cognitive factors and age on the association of behavioral condition recall and compliance. Table 5 presents the results of these analyses. Model 1 shows that neither adolescent attitudes about probation nor self-efficacy beliefs achieved statistical significance. They are presented jointly in Model 1 for the sake of brevity. Model 2 shows that the youth-rated psychological reactance was not significant. On the other hand, the interaction of behavioral conditions with age (Model 3; $OR = .58, p < .05$) and with emotion regulation (Model 4; $OR = .25, p < .05$) both predicted compliance. Results of these interactions are presented graphically in Figure 2 and Figure 3 for the sample average adolescent. Figure 2 shows that condition recall became more salient with age, where the transition between 13 and 14 years old represents an inflection point where condition recall of specific behavioral conditions becomes salient. In terms of emotional regulation (see Figure 3), the sample average is situated near the high end of the scale, where the average parent rated their child's emotion regulation between *usually* and *always* ($M = 3.3, SD = .51$). At this level, there was a wide difference in predicted probabilities of compliance problems between adolescents who recalled specific conditions and those who did not (10% vs. 22%, respectively). When parents rated their children lower than *usually* (i.e., *sometimes* or *never*), the predicted probability of compliance problems were indistinguishable for adolescents regardless of the specificity of their condition recall.

Table 4
Multilevel Logistic Regression of Compliance on the Interaction of Prior Compliance Problems and Condition Recall Characteristics

Variables	β (SD)
Constant	-1.69 (.34)***
Supervision (centered)	.01 (.00)***
Days under supervision (centered)	-.00 (.00)*
African American	.70 (.34)*
Risk scale (centered)	.15 (.08)†
Prerecall compliance problems—matched conditions	
No compliance problems, general condition	.37 (.41)
No compliance problems, behavioral condition	-.43 (.35)
Compliance problems, no condition	2.00 (.35)***
Compliance problems, general condition	1.54 (.45)**
Compliance problems, behavioral condition	.78 (.40)†
Random effect	.35 (.27)
Wald (df)	7.72 (8)***

Note. No prior compliance problem/no condition recall is the reference category.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

This study was conducted to explore the effects of youth comprehension of their probation conditions on short-term compliance. Consistent with expectations from goal-setting theory, results indicated that youths with more detailed and specific knowledge of their conditions were more likely to comply with their probation conditions. This effect was strongest among adolescents who already were noncompliant but who offered more elaborated, detailed descriptions of their probation conditions. Further, the effect was limited to the match between conditions recalled and specific

Table 5
Multilevel Logistic Regression of Compliance on Social-Cognitive and Developmental Moderators of Condition Recall Characteristics

Variables	Model 1 ^a	Model 2 ^{ab}	Model 3 ^a	Model 4 ^{ab}
	β (<i>se</i>)	β (<i>se</i>)	β (<i>se</i>)	β (<i>se</i>)
Constant	-.83	-1.09	-1.14***	-1.22***
Supervision (centered)	.01**	.01***	.01***	.01***
Days under supervision (centered)	-.00*	-.00	-.00*	-.00*
Prior compliance (centered)	1.55***	1.64***	1.62***	1.59***
African American	.71*	.80**	.75**	.85**
Risk scale (centered)	.17*	.16*	.16*	.14 [†]
Behavioral condition	-.41	-1.65	-.75**	-.87**
Attitude	-.03			
Attitude by condition	.08			
Efficacy	-.08			
Efficacy by condition	-.30			
Reactance		-.04		
Reactance by condition		.37		
Age (centered)			.15	
Age by condition			-.54*	
ERQ (centered)				-.24
ERQ by condition				-1.39*
Random effects	.31 (.26)	.61 (.22)	.35 (.26)	.60 (.23)
Wald (<i>df</i>)	Wald (9) = 74.4***	F(7) = 9.66***	Wald (7) = 78.90***	F(7) = 9.51***

Note. ERQ = Emotion Regulation Questionnaire.

^a Five compliance indicators: curfew, home problems, school attendance, program attendance, probation attendance. ^b Imputed data used to account for missing data in reactance and the ERQ.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

compliance behaviors; the overall proportion of conditions accurately recalled did not predict compliance behaviors in this analysis. Importantly, our condition recall task assessed condition knowledge in an open-ended manner. Participants were prompted to list all the conditions they could recall, but were not specifically prompted to elaborate on their descriptions. Thus, a strength of this study was the spontaneous demonstration of condition knowledge without the reminders and memory aids provided by more directive or suggestive research methods (e.g., prompting with a checklist of questions, or asking if participants had been assigned any of a list of predefined conditions). Should these findings withstand confirmation in future research, the implication for probation practice is clear—probation officers should take deliberate steps to promote the specificity of youths' condition comprehension.

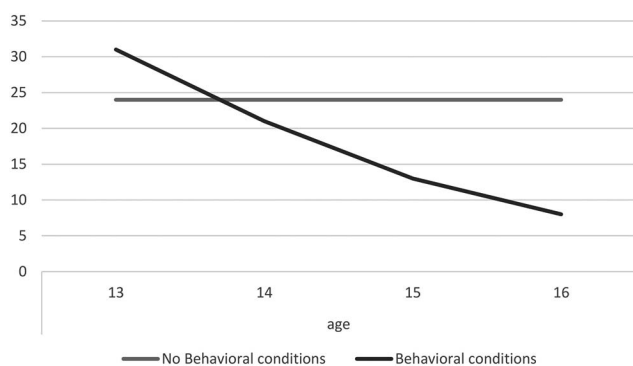


Figure 2. Interaction of age and behavioral conditions on the model predicted probability of compliance problems.

The association between condition recall specificity and compliance were in line with the theoretical framework developed for this study. However, the association could be spurious if condition recall characteristics represented alternative processes in addition to knowledge. Youth who are more committed to successfully completing their probation may also be more committed to adhering to probation conditions and may be more attentive to the details of their conditions. Variations in commitment could also have influenced how adolescents presented themselves in the condition recall task; more committed adolescents may have been more forthcoming about their conditions when asked. In either case, what we detected through the condition recall task may not

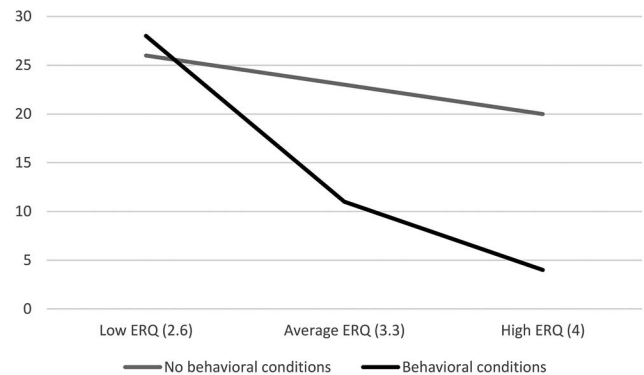


Figure 3. Interaction of Emotion Regulation Questionnaire (ERQ) scores and behavioral conditions on the model predicted probability of compliance problems.

be limited to knowledge per se, but also to commitment or some other related process. Three methodological remedies will be required to tease out the relationship of comprehension and compliance in future studies. First, a more comprehensive measure of comprehension is needed, one that includes both the spontaneous recall component as utilized in this study and a more traditional knowledge test of critical probation and court processes related to conditions and consequences. Second, future studies should incorporate an experimental design that manipulates comprehension directly to disentangle the effects of comprehension from other attitude-related processes. Third, research should control for commitment-related attitudes and beliefs about probation directly.

Characteristics of condition knowledge evoked by our recall task were not associated with compliance outcomes for relatively less mature adolescents. As expected from research in cognitive and emotional development, the salience of condition knowledge grew with age, and was stronger among adolescents who had relatively well-developed emotional regulation and emotional control. One explanation is that unlike younger adolescents and those with poorly developed emotional regulation, these youths possessed self-control skills needed to translate behavioral intentions into action even when in the presence of “hot” social-emotional contingencies or temptations in their daily lives. As noted earlier, adolescent compliance may be strongly influenced by proximal environmental contingencies that reward rule-breaking behavior. For adolescents who struggle with emotional control deficits, these contingencies may swamp the influence of probation processes and court sanctions that are applied in typical probation contexts. Other probation-related processes may be needed to support compliance in this difficult group. For instance, enhanced controls and intervention strategies that penetrate adolescents’ daily social environments may be needed to support prosocial decision making (Miller, 2014). In addition, social-cognitive programs that teach self-control skills directly may be another fruitful option (Glick & Gibbs, 2011).

Contrary to our conceptual framework, probation-related attitudes and efficacy beliefs did not predict compliance, nor did they interact with condition knowledge as expected. Theories underlying this study, including goal-setting theory and sociocognitive theories of behavior and decision making argue that attitudes and efficacy beliefs such as those measured here should influence adolescent intentions to follow through on goal-directed behavior related to their conditions (Fishbein & Ajzen, 2015). Moreover, evidence-based approaches to probation converge on the importance of addressing antisocial adolescent attitudes and beliefs (Bonta et al., 2010; Bourgon & Gutierrez, 2012; Gleicher, Manchak, & Cullen, 2013; Smith, Schweitzer, Labrecque, & Latessa, 2012; Trotter, 2013). Results of the current study cast doubt on the importance of probation-related attitudes and efficacy beliefs for cooperation, however. One explanation is that the study did not address beliefs and attitudes that are specifically related to juvenile justice involvement. For instance, attitudes about the legitimacy of the juvenile justice system and legal cynicism, along with the development of attitudes and beliefs associated with legal socialization, may be particularly salient for compliance (Fine et al., 2018; Tyler, 2009). More research is needed to identify the social-cognitive attitudes and beliefs that predict greater engagement among adolescents in the probation process.

Two other findings warrant further discussion. First, the idiosyncratic relationship of condition knowledge with drug use and with arrest presents a puzzle. Within the framework of goal-setting theory, both conditions were predominantly classified as avoidance and would therefore not be expected to increase compliance. This was true for arrest, where condition knowledge was not associated with compliance. However, the finding regarding drug use conditions is more complex; recall of drug use conditions was associated with increased noncompliance in this area. In this respect, our findings mirror NeMoyer and colleagues (2014), who found that drug use conditions were associated with noncompliance. Earlier research with the current data showed that probation practices, especially positive pressures like incentives, rewards, and praise, along with engagement with substance abuse treatment early in probation, were associated with reduced drug use (Schwalbe, 2019). Thus, it appears that individual compliance behaviors, and especially drug use, may be influenced differentially by unique probation processes.

Second, that African American youth had greater compliance problems than a reference category comprised of Latino and non-Latino White youth mirror findings of NeMoyer and colleagues (2014) and Smith and colleagues (2009) but diverge from Bechtold and colleagues (2015) and from Leiber and Peck (2013). One explanation for the divergence may be methodological. The current study, along with Smith and colleagues (2009) and NeMoyer and colleagues (2014), measured probation officer-reported noncompliance in case notes, whereas Bechtold and colleagues (2015) and Leiber and Peck (2013) used a more stringent standard of formal probation violations. Violations are distinguished from simple noncompliance in that they are formal actions, up to and including referral to the courts; noncompliance on the other hand are case note mentions of rule breaking that may or may not lead directly to escalating sanctions.

Unfortunately, data available for this study cannot explain the racial disparity in reported noncompliance. The disparity may derive from the implicit biases of probation staff themselves that can contribute to disproportionate surveillance and recording of youth compliance behavior (Bridges & Steen, 1998), or may derive from the strain of experienced racism and discrimination, both in the community and in the legal system itself, that make African American youth more prone to the types of rule violations that would be of interest to probation departments (Unnever & Gabbidon, 2011). Future research should account for these potential mechanisms in their designs.

Limitations in sampling, measurement, and design qualify the findings of the current study. The sample size is smaller than we had hoped and is restricted to a single jurisdiction. Thus, the generalizability of the associations we detected between compliance and condition specificity as well as the stability of the developmental interactions require confirmation in future studies. In terms of measurement, the study’s reliance on probation case notes for critical outcomes introduced error into its measurement of compliance. Like all legal records, probation records are limited by their capacity to detect actual behavior. Most certainly, noncompliance recorded here was a conservative estimate; some non-compliant behaviors were not detected nor reported to probation officers. Further, probation officers have some discretion about what to record in their records. Future research should incorporate multiple measures of youth compliance outcomes. Finally, this

study did not control for probation practices related to condition knowledge. Probation officers may be more or less attentive to condition comprehension, and that attentiveness itself may have influenced compliance outcomes independent of comprehension itself.

Mindful of these limitations, our study of condition comprehension raises practical recommendations for probation practice and for future research. First, probation officers should foster condition comprehension among youths, ensuring that they can describe their conditions in detail. Future research should test the effects of probation tactics and strategies specifically designed to improve youth comprehension of their conditions and associations of condition comprehension on short and long-term behavioral outcomes. Ideally, this research will further establish the causal relationship between comprehension and compliance through the use of an experimental design. Second, future research should focus on strategies for probation tailored for younger youth and for youth whose psychosocial maturity and capacity for emotional regulation is relatively less developed. To do this, additional study is needed to isolate how developmental markers and environmental contingencies shape youths' decision making, as it relates to compliance, on a day-to-day and moment-to-moment basis. Lastly, results of this study create an opening to explore mechanisms underlying the persistent effect of race on compliance recorded in probation records.

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Received October 18, 2019

Revision received February 25, 2020

Accepted February 25, 2020 ■