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## Validation of Police Officer Recruit Candidates' Self-Reported Drug Use

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**ABSTRACT:** Three hundred and fifty-nine Chicago Police Department recruit candidates submitted urine specimens as part of a drug-screening program. Candidates were tested in two groups about a week apart. About 20% of the recruit candidates in each group evidenced drug, primarily marijuana use. As part of a psychological screening test battery all the candidates also took the Inward Personality Inventory (IPI). The IPI contains a self-report Drug Use Scale. Drug-Positive and Drug-Negative candidates' Drug Use Scale scores were matched by age, sex, and racial/ethnic group and compared to evaluate the accuracy of self-reported drug use when screening police recruit candidates. Results showed that Drug-Positive candidates' self-reported drug use was consistently higher than that of Drug-Negative candidates. Item-level analyses showed which drug use items best discriminate between Drug-Positive and Drug-Negative candidates. Implications are drawn for use of self-report as part of a police candidate screening process.

**KEYWORDS:** criminalistics, drug identification, police, screening procedures

There has been growing recognition of the importance of screening out psychologically unsuitable police officer recruit candidates before hire [1]. Police officers occupy a unique and important societal position: they carry a weapon and are empowered to use it in a wide variety of situations; they have wide-ranging powers of arrest. Bring a good officer calls for an ability to stay physically fit, exercise good judgment—sometimes under dangerous conditions—and respond quickly to challenges. Good officers must cooperate with fellow police personnel and be able to take orders from supervisors. Being a good officer also calls for the ability to withstand a great deal of stress, stress that has been described by a large literature (for example, Refs 2 and 3) without resorting to pathological adjustment mechanisms such as substance abuse. Resistance to temptation (such as the temptation to take bribes or take confiscated illegal substances for personal use) also constitutes an aspect of being a good police officer. Recently, recognition of the importance of psychologically testing and screening police officer recruit candidates has been enhanced by court cases (for example, *Bonsignore v. City of New York*, 78-0240, 9/81 and *Conte v. Horcher*, Appellate Court of Illinois, 6/77) that have held municipalities or counties liable for the unjustifiable, injurious actions of individual law enforcement officers in their employ.

Attempts to screen police officer candidates through the use of psychological tests reach

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back at least several decades. Understandably, initial attempts involved using tests developed for purposes other than police selection. Examples are early attempts to use the Humm-Wadsworth Temperment Scale [4] and the Edwards Personal Preference Scale [5]. The Minnesota Multiphasic Personality Inventory (MMPI) has become the most widely used and researched test [6], and predictive validity studies using the MMPI have produced positive results [7]. Results, however, have often been less than impressive [8]. In their review of the relevant literature, Shusman, Inwald, and Landa [8] concluded that correlations between candidates' MMPI scales and future performance ratings after they became police officers range from 0.18 to 0.61. Successful use of the California Personality Inventory (CPI) and Cattell's Sixteen Personality Factor Questionnaire (16 PF) also have been reported for use in psychologically screening police officer recruit candidates [7,9,10]. Like the MMPI, though, the CPI and the 16 PF have limited utility, perhaps because they were not specifically designed for the selection of police officer candidates.

In contrast to these tests, the Inwald Personality Inventory (IPI) [11] was developed for the specific purpose of selecting police and correctional officers. Many of the items of the IPI are in effect self-reported admissions concerning behavior at least theoretically related to future performance as a police officer, such as frequent firings, job lateness, difficulties with the law, and drug use. One of the basic tenets of the IPI is that persons who report a great deal of negative behavior in areas such as job performance and use of substances are relatively poor risks for hire as police recruits. The opposite argument could easily be made, however. For instance, it could be argued that a high degree of self-reported negative behavior simply reflects honesty on the test-taker's part. For this reason a high degree of self-reported negative behavior actually might correlate positively with future success as a police officer.

Initial reports indicate that the IPI performs better than do traditional psychological tests for the purpose of police officer recruit selection [8,12]. Data presented in Inwald [11] show that the IPI Drug Use Scale in particular is one of the best scales in terms of correlates with future academy performance. Specifically, high Drug Use scores correlated positively with indicators of poor performance such as frequent lateness, absences, and assignment to restricted duty. Thus the literature supports the IPI's presumption that a high degree of self-reported negative behavior will correlate with poor future performance. Nevertheless, more confirmation of this presumption is necessary, particularly since it is a crucial one for the use of this test.

This study adduces additional data relevant to the validity of the IPI Drug Use Scale, and in particular, the validity of various items constituting the Drug Use Scale. It does so by comparing IPI Drug Use data from candidates for police officer positions showing positive indications of drug use with IPI Drug Use data from candidates showing no indications of drug use. In each case indications of drug use were based on analyses of candidate-supplied urine specimens.

## Method

In 1985, approximately 1000 persons were evaluated for possible selection as Chicago police officer recruits. Psychological testing using both the MMPI and the IPI was built into the selection process [13]. To reach the psychological testing phase of this screening process, a candidate had to pass a civil service examination, an assessment center procedure, and a physical fitness examination. These procedures removed from the recruit candidate list about two thirds of the persons applying for police officer positions. For purposes of psychological testing, eligible candidates were called in groups of approximately 200. The groups discussed in this paper comprised the first 2 groups of recruit candidates tested in 1985.

As a separate part of the screening process, about a week before psychological testing was administered, another screening procedure took place. This procedure consisted of asking

recruit candidates to provide urine specimens to be analyzed for possible illicit drug use [14]. Candidates in the first group tested (hereafter called Group I) probably were less aware of the purpose of their providing urine samples than were candidates in the second group tested (hereafter called Group II). The reason is that after Group I was tested, some media publicity was given to the fact that urine analysis drug screening was taking place in connection with Chicago police hiring. An independent laboratory analyzed the urine for possible presence of tetrahydrocannabinol (THC) or cannabinoid metabolites, cocaine metabolites, barbiturates, opiates, and other illicit substances.

Upon a positive finding of possible illicit substance use, recruit candidates were questioned. Those unable to provide a legitimate excuse for having evidenced such substances in their urine were excluded from the recruit candidate hiring list. It should be noted that before taking the IPI, recruit candidates were warned that any dishonesty on their part when responding to the IPI could result in their not being hired or their being terminated immediately were they to be hired. Moreover, the IPIs taken by recruit candidates in both groups were administered and scored without knowledge by the test administrator or the recruit candidates of the results of the urine analyses. Presumably many of the recruit candidates who had recently used illicit substances would have been unaware of what their urine analyses might show, since knowledge as to how long evidence of substance abuse remains in abusers' bodies is largely unknown to the general public.

For purposes of this study, subgroups of recruit candidates evidencing illicit drug use in their urine samples were compared with matched subgroups of candidates who did not evidence illicit drug use in their urine samples. Results from Group I and Group II were analyzed separately to evaluate whether any significant results obtained in Group I would be replicated by analyses based on Group II data.

Candidates providing drug-positive urine specimens were compared with an equal number of candidates providing negative urine specimens. Since the drug-negative urine specimen subgroup was much larger than the drug-positive urine specimen subgroup, random samples of drug-negative urine specimen candidates were chosen to compare with the drug-positive urine specimen candidates. These drug-negative samples were formed by randomly selecting, for each drug positive candidate, a like-age, same-sex, same-race, drug-negative recruit candidate. Apart from the constraints of the matching procedure, the drug negative samples were selected randomly from among the Groups I and II drug negative recruit candidates. As a result of the selection procedure, drug-positive and drug-negative candidates were matched for age, sex, and racial/ethnic group.

There are 13 items in the Drug Use Scale of the IPI Drug Use Scale. Scores are generated by summing the number of items endorsed so as to indicate past or present drug use. Thus, responding "True" to the item "I have smoked marijuana without other people around" or responding "False" to the item "I have not tried cocaine" increases the Drug Use Scale score by one unit. Analyses were conducted by means of split plot, randomized block analyses of variance (ANOVAs) with subjects as blocks nested within racial/ethnic group and Urine-Analysis-Drug-Positive and Urine-Analysis-Drug-Negative candidates forming the levels of the negative or positive drug use contrast. For purposes of these analyses, racial/ethnic group was broken down by black versus white and hispanic; the groups were divided in this way because there were too few hispanics to allow that group to be considered as a separate category. There were too few women to consider them separately in the analyses. A result was considered significant if the corresponding *F* value was at the *P* less than 0.05 level.

## Results

Of 175 recruit candidates in Group I, 43 showed positive indications of drug use through analyses of urine specimens provided by them. Table 1 shows their demographic characteristics.

TABLE 1—*Demographic characteristics of Group I Urine-Analysis-Drug-Positive recruit candidates.*<sup>a</sup>

|        | Black    | White   | Hispanic |
|--------|----------|---------|----------|
| Male   | 21 (49%) | 8 (19%) | 7 (16%)  |
| Female | 4 (9%)   | 2 (5%)  | 1 (2%)   |

<sup>a</sup>Mean age = 29.0.

Of the 182 recruit candidates in Group II, 34 provided urine specimens showing positive indications of illicit drug use. Table 2 shows the demographic characteristic of these 34 recruit candidates. In the vast majority of instances, for both Groups I and II, positive urine analyses corresponded to presence of cannabinoids indicative of marijuana use, not other drug use. In a minority of instances, cocaine or barbiturate use was shown.

Table 3 shows that for Group I, the Drug-Positive versus Drug-Negative contrast is significant at the 0.01 level. Neither the racial/ethnic group contrast nor the racial/ethnic group by Drug-Positive versus Drug-Negative interaction was significant. Group means show that the Drug-Positive Drug Use Scale mean is almost two and one half times greater than that of the Drug-Negative Group (1.40 versus 0.58).

Table 4 shows that, for Group II, the Drug-Positive versus Drug-Negative contrast is significant at the 0.001 level. Neither the racial/ethnic group contrast nor the racial/ethnic group by Drug-Positive versus Drug-Negative interaction was significant. Group means show that the Drug-Positive Drug Use Scale mean is almost four and one half times greater than that of the Drug-Negative Group (2.55 versus 0.58).

For both groups, higher Drug Use score means were obtained by Drug-Positive candidates as opposed to Drug-Negative candidates among blacks, whites and hispanics, males, and females.

TABLE 2—*Demographic characteristics of Group II Urine-Analysis-Drug-Positive recruit candidates.*<sup>a</sup>

|        | Black    | White   | Hispanic |
|--------|----------|---------|----------|
| Male   | 18 (53%) | 6 (18%) | 3 (9%)   |
| Female | 5 (15%)  | 2 (6%)  | 0 (0%)   |

<sup>a</sup>Mean age = 30.3.

TABLE 3—*Urine-Analysis-Drug-Positive and Urine-Analysis-Drug-Negative police recruit candidates' IPI Drug Use Scale scores: Group I.*

|                                          | Drug-Positive                            | Drug-Negative                            |
|------------------------------------------|------------------------------------------|------------------------------------------|
| Black ( <i>N</i> = 25 pairs)             | 1.48 <sup>a</sup><br>(1.17) <sup>b</sup> | 0.72 <sup>a</sup><br>(1.06) <sup>b</sup> |
| White or Hispanic ( <i>N</i> = 18 pairs) | 1.28 <sup>a</sup><br>(1.56) <sup>b</sup> | 0.39 <sup>a</sup><br>(0.98) <sup>b</sup> |

<sup>a</sup>Numbers are subgroup means; using a split plot, randomized block ANOVA,  $F = 7.011$  with 1 and 41 d.f. ( $P 0.01$ ) for the Drug-Positive versus Drug-Negative contrast;  $F = 0.847$  with 1 and 41 d.f. (N.S.) for the black versus white/hispanic contrast and  $F = 0.043$  with 1 and 41 d.f. (N.S.) for the Drug-Positive versus Drug-Negative by black versus white/hispanic interaction.

<sup>b</sup>Numbers in parentheses are subgroup standard deviations.

TABLE 4—*Urine-Analysis-Drug-Positive and Urine-Analysis-Drug-Negative police recruit candidates' IPI Drug Use Scale scores: Group II.*

|                                     | Drug-Positive                            | Drug-Negative                            |
|-------------------------------------|------------------------------------------|------------------------------------------|
| Black ( $N = 23$ pairs)             | 2.43 <sup>a</sup><br>(1.90) <sup>b</sup> | 0.57 <sup>a</sup><br>(1.12) <sup>b</sup> |
| White or Hispanic ( $N = 11$ pairs) | 2.64 <sup>a</sup><br>(2.80) <sup>b</sup> | 0.55 <sup>a</sup><br>(1.21) <sup>b</sup> |

<sup>a</sup>Numbers are subgroup means; using a split-plot, randomized block ANOVA,  $F = 21.776$  with 1 and 32 d.f. ( $P 0.001$ ) for the Drug-Positive versus Drug-Negative contrast;  $F = 0.034$  with 1 and 32 d.f. (N.S.) for the black versus white/hispanic contrast and  $F = 0.182$  with 1 and 32 d.f. (N.S.) for the Drug-Positive versus Drug-Negative by black versus white/hispanic interaction.

<sup>b</sup>Numbers in parentheses are subgroup standard deviations.

An analysis at the item level shows that for both groups the most discriminating items were "I have smoked marijuana without other people around" and "I have smoked marijuana more than two times in a week." The vast majority of candidates in both groups did not endorse two other items phrased in the present tense and therefore clearly indicative of current marijuana use. Approximately one third of the Drug-Positive recruit candidates failed to affirm even one item indicative of drug use; about two thirds of the Drug-Negative recruit candidates failed to affirm even one drug use item. Seventeen percent of the Drug-Positive candidates and eight percent of the Drug-Negative candidates admitted to past or present cocaine use. In round numbers, the mean Drug Use Scale score plus one standard deviation for all candidates tested ( $N = 379$ ) is 2. Using that score as a cutoff beyond which higher scores are considered elevated, results show that 48% of the Drug-Positive candidates obtained elevated Drug Use Scale scores (that is, scores of 2 or more), while only 13% of the Drug-Negative candidates did so.

## Discussion

Urine analysis determined Drug-Positive and Drug-Negative police recruit candidates have significantly different IPI Drug Use Scale score means. As might be expected based on the rationale of the IPI, Drug-Positive recruit candidates evidence much higher endorsement of drug use related items than do Drug-Negative recruit candidates. These results held for two separate groups of recruit candidates and within these groups for blacks, whites and hispanics, males, and females. Therefore, indications are that actually having used drugs as determined by independently conducted urine analyses corresponds with a relatively high amount of self-reported drug use as reflected by an elevated IPI Drug Use scale score.

The false negative rate corresponding to use of the IPI Drug Scale is less encouraging. One third of the Drug-Positive candidates in both Groups I and II failed to endorse any IPI drug use items. Two of the items clearly indicate present drug use, "I smoke marijuana on social occasions," and "I like to smoke marijuana to relax," but more than 85% of the Drug-Positive candidates failed to endorse either of these items. Since a positive urine finding reflects current or at least recent drug use, and since marijuana metabolite was found in the vast majority of cases, it is likely that these candidates' IPI responses reflected a great deal of minimization or denial. Reinforcing this impression is the fact that even the highest scoring group—the Group II Drug-Positive candidates—averaged only 2½ endorsements across 14 drug-related items.

In a sense, though, IPI results indicate the urine tests also present false negatives, false negatives that the IPI helps to identify correctly. One third of the Drug-Negative candidates admitted at least some drug use, past or present; 5% of the Drug-Negative candidates, for

whom by definition there was no urine analysis derived evidence of marijuana use, admitted present marijuana use. None of the Drug-Negative candidates evidenced cocaine metabolite in their urine. Yet 8% of these candidates admitted to past or present cocaine use on the IPI. The number of Drug-Positive candidates admitting to cocaine use was far in excess of the number evidencing cocaine metabolite in their urine. As pointed out earlier, given the norms established by the total group of 379 candidates, 13% of the Drug-Negative candidates had elevated Drug Use scores, even though by definition, none manifested drug use through utilization of urine analysis.

It seems fair to conclude that for purposes of screening police recruit candidates, the urine analysis and the IPI are both useful. The urine analysis presents definitive information about drug use. But the information provided by the urine analysis is limited in that only relatively recent drug use is measured: use of a drug like cocaine might not be detected after a lapse of as little as three days. The IPI yields many false negatives. But in effect, each of the Drug-Negative candidate IPI Drug Use admissions represents information that possibly cannot be otherwise ascertained. Each admission presents an opportunity for further inquiry on the part of a psychologist in a face-to-face interview with the candidate. The research presented here indicates that even a few drug use admissions represents a relatively high number and may be associated with current use of drugs. Such an admission rate, therefore, should be the occasion for intensive follow-up inquiry.

In practice, urine analyses (along with extensive background investigations) may be necessary to assure effective use of the IPI. When candidates (1) submit urine specimens and know the purpose of that submission and (2) know they have been the subject of a background investigation, they may be more reluctant to minimize their past and present drug use than they otherwise might be. The candidates could be said to be in a "prisoner's dilemma," feeling that if they admit to drug use they will not be hired but that if they are caught lying while denying drug use they will not be hired for that reason. As a result, many drug-using candidates may opt for a small but nevertheless notable number of item endorsements, favoring in particular those phrased in the past as opposed to the present tense.

To conclude, use of the IPI Drug Use Scale as a criterion for identifying police recruit candidates as psychologically unsuitable to be police officers is very useful. It is likely to result in many false negatives but also identify many true positives not otherwise ascertainable. The IPI is a useful tool for use in screening police officer recruit candidates, but its use must be supplemented by other means of screening such as urine analyses and careful background investigations.

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