

Predicting Performance of Police Officers Using the Sixteen Personality Factor Questionnaire¹

Joseph Fabricatore

A. T. Kearney, Inc.

Stanley Azen² and Sarah Schoentgen

*Department of Community and Family Medicine,
University of Southern California*

Homa Snibbe

Department of Psychiatry, University of California at Los Angeles

This study attempted to identify reliable predictors of successful police performance on the basis of personality factors as measured by the Sixteen Personality Factor (16 PF) Questionnaire. The sample consisted of 333 young White Los Angeles patrolmen. Discriminant analyses and cross-validation revealed that factors E (aggressive) and I (tough-minded) were consistent predictors of superior performance. These results support suggestions of the homogeneity of the police personality and encourage the inclusion of the 16 PF in an array of assessment procedures.

Because the impact a police officer can have on individuals and society is potentially wide and irreversible, it is extremely important to predict his or her behavior. Some evidence suggests that police performance can be anticipated through the use of bio-data variables (Baehr, Furcon, & Froemel, 1968; Cohen & Chaiken, 1972; Levy, 1967) and through peer assessment (Azen, Snibbe, Montgomery, Fabricatore, & Earle, 1974), but little information is available that uses psychological variables to predict police performance. Allowing individuals to perform law enforcement duties without either psychological or administrative screening or both raises the most serious public security policy issues.

¹Work on this study was partially supported by LEAA Grant No. 72-DF-09-0005, administered under the auspices of the Los Angeles County Sheriff's Department and the Department of Personnel. Thanks to Jeannine Foreman for her typing service.

²All correspondence should be sent to Dr. Stanley P. Azen, Department of Community Medicine, University of Southern California, Los Angeles, California 90033.

Although psychological data have not been well-demonstrated to predict police performance, more than half of the police agencies recently surveyed (Snibbe & Grencik, 1974) make use of psychological assessment in the hiring process. Traditionally, these data have been used in determining psychopathology, and the usual selection event is a "screen out" decision rather than a "select in." Such psychopathologically oriented data are usually developed from the MMPI, projectives, and a clinical interview, and combined clinically to arrive at an accept-or-reject decision. For example, a few MMPI scales have been shown to relate to disciplinary reprimands and on-the-job automobile accidents (Azen, Snibbe, & Montgomery, 1973; Blum, 1964).

Little evidence is available supporting relationships between psychological variables and "select in" decisions. Gaining "select in" information is done in other contexts by developing data on an entire sample, permitting the sample to perform the job behaviors, and then relating the performance criteria to the previously developed data. However, an alternative method for isolating "select in" variables is to review the records of "screened in" officers and to examine the psychological differences separating high and low performers.

The present research relates psychological paper-and-pencil results derived from a group of functioning police patrol officers to four performance criteria. Since these officers were already "screened in," the MMPI was judged inappropriate, and Cattell's Sixteen Personality Factor Questionnaire (16 PF), a normal personality dimension instrument, was chosen for personality assessment (Cattell, Eber, & Tatsuoka, 1970a; 1970b). The 16 PF has a widely documented use in research and occupational settings, and some initial results on Black, White, and Mexican-American police officer norms are already available (Snibbe, Fabricatore, & Azen, 1975). Police performance criteria included dimensions relevant to "select in" decisions: ranked comparisons to peers, police supervisory ratings, fewer motor vehicle accidents, and least number of official reprimands. Finally, a weighted overall performance score was computed using a subjective combination of the four criteria.

METHOD

Subjects

The sample for this study was chosen from 491 male law enforcement officers (10% of LASD patrolmen) randomly selected from all 14 sheriff stations during 1971 to 1972. Description of the LASD officer selection procedures, the sample selection methods, and the demographic breakdown of the resulting sample are given in Snibbe and Grencik (1974) and Snibbe et al. (1975). From this sample of 491 officers, only White officers between the ages of 20 to 39

who took the psychological tests were used for the prediction analyses ($n = 333$, 68%). The removal of Blacks, Mexican-Americans, and officers over 39 years old insured a homogeneous sample with respect to the psychological prediction variables (see Snibbe et al., 1975).

The 333 officers were further divided into two groups (Phase 1, $n = 175$; Phase 2, $n = 158$) by matching the 14 stations by size and geographic location.³ Analyses for differences between the two Phases revealed no significant differences in the distributions of age, year of appointment, and mean academy scores. Phase 1 was used for model building, and Phase 2 was used for validation purposes.

Materials

Sten scores from the Sixteen Personality Factor (16 PF) Questionnaire, Form A (Cattell et al., 1970a; 1970b) were used as predictor variables. This questionnaire was administered to the officers within a station by a clinical psychologist and an officer (both female). Raw scores for each factor were converted to sten scores using normative data for the general male population (age = 30, $n = 2255$; Cattell et al., 1970b, p. 18; see Snibbe et al., 1975 for description of the testing and conversion procedures). No significant differences in mean sten scores were found between the two Phases.

From these data an attempt was made to identify variables statistically related to one of four criteria of a patrolman's success. The first criterion was a paired comparison (PC) rating obtained as follows: each supervisor acquainted with each officer's performance at his current assignment was given a deck of cards containing the names of two of the officers whose performances were known to the supervisor-rater. Each officer's name was paired once with each other officer's name. The supervisor was asked to make a global judgment as to which was the better policeman, and to mark his choice on the card. The PC score for each officer was the total number of marks for that officer.

The second criterion of success was the standard overall department supervisor's rating (SR), 1 = low to 5 = high. The third criterion was the number of official reprimands (REP), and the fourth criterion was the number of preventable vehicle accidents (PREVAC). Other criteria might have been used, such as the record of official commendations, but these four were selected by the officers in charge of the project as the best or most relevant. No significant differences in the distribution of the criteria were found between the two Phases.

³Phase 1 included Industry, San Dimas, Altadena, Temple City, Antelope Valley, Lakewood, and Firestone. Phase 2 included East Los Angeles, Norwalk, Montrose, Lennox, Newhall, West Hollywood, and Malibu.

Procedures

Mutiple and canonical correlation analyses were performed to evaluate the relationships between predictors and criteria. For each criterion, a discriminant analysis using 16 PF sten scores as independent variables was performed on the Phase 1 sample to determine classification rules for predicting membership in one of two groups. Groups were defined for each criterion as follows: PC (upper 15th percentile vs. all other), SR (above average vs. average⁴), REP (none vs. one or more), PREVAC (none vs. one or more). The resulting classification rules were then applied to the Phase 1 and the Phase 2 samples.

In addition, an overall performance score was obtained as follows: Each of the four criteria was transformed to a scale ranging from 0 to 100 where “0” represents the worst score and “100” represents the best score. The standardized criteria were then weighted and summed to form the overall performance score (OPS). The weights in the summation were based on opinions of project managers as to the relative importance of the criteria in selecting individuals for police work (Adelman, McEachern, & Taylor in Snibbe & Grencik, 1974, pp. 379-401). The result was:

$$OPS = 0.412 (PC + SR) - 0.134 (REP) - 0.041 (PREVAC)$$

The OPS was then analyzed using discriminant analysis to find predictors among the 16 PF of the upper 15th percentile.

RESULTS

Simple correlation analysis among the four criteria for the combined Phases yielded anticipated relationships: PC with SR, $r = 0.17, p < .001$; PC with PREVAC, $r = -0.08, ns$; PC with REP, $r = -0.11, p < .02$; SR with PREVAC, $r = -0.02, ns$; SR with REP, $r = -0.07, ns$; and PREVAC with REP, $r = -0.03, ns$. Canonical correlation analysis of the four criteria with the 16 PF scales yielded $r = 0.27 (p < .001)$ as the maximum possible correlation between these two sets of variates. Thus, the 16 PF “explains” no more than 9% of the variance of the combined four criteria.

Table I presents the results of the predictive analysis using the Phase 1 sample. Column 2 lists the multiple correlation results in terms of proportion of accounted variance (R^2) of each criterion and the overall performance score explained by all 16 PF scales. The consistently small R^2 suggests the infeasibility of using the 16 PF in a multiple regression context for prediction of the criteria.

Column 3 presents the group-classification rules obtained from the discriminant analyses. The significant predictors were: high PC (upper 15%) was

⁴No officer scored below average in this data.

Table I. Predictive Efficiency of the 16 PF for Five Performance Criteria

Criterion	% of variance	Classification rule	<i>p</i>	% Correct decisions		
				Phase 1	Phase 2	Using base rate
Paired comparison (PC)	6.8%	Upper 15% if $E \geq 6.49$	<.05	0.19	0.18	0.15
Supervisor's rating (SR)	5.8%	Above average if $I \leq 4.02$	ns	0.38	0.46	0.37
Preventable accidents (PREVAC)	7.8%	No accidents if $O \leq 5.21$	<.025	0.66	0.60	0.62
Reprimands (REP)	7.3%	No reprimands if $G \geq 5.30$	ns	0.95	0.94	0.92
Overall performance score ^a (OPS)	1.4%	Upper 15% if $I \leq 3.78$	<.025	0.24	0.19	0.15

^aOPS = 0.412 (PC + SR) - 0.134 (REP) - 0.041 (PREVAC).

predicted by greater E (aggressive, competitive); no PREVAC by smaller O (self-assured); high OPS (upper 15%) by smaller I (tough-mindedness). The efficiency of each group-classification rule (percent correct decisions) was evaluated by applying the rule to Phase 1 and Phase 2, calculating the proportion of officers correctly classified for each Phase, and comparing these results to the base rates or antecedent probabilities of group membership. Gains in predictive capability for Phase 1 with subsequent validation for Phase 2 were obtained for high PC and high OPS (last 3 columns of Table I). Thus, these results suggest that high performance can be anticipated for a "screened in" patrol officer if his $E \geq 6.49$ (for PC) and his $I \leq 3.78$ (for SR), i.e., if he is aggressive and/or tough-minded.

DISCUSSION

The results of this study provide some concurrent validity support for the relationship between psychological factors measured on the 16 PF and police performance criteria. The results are based on "select in" or superior performance criteria rather than "screen out" or negative performance, and greatest efficiency is attained through the use of discriminant function analysis as opposed to the traditional regression technique. Although the present results are not dramatic, they do appear in the direction suggested by previous work (Snibbe et al., 1975) and in many ways reinforce popular conceptions of the police personality. Like media portrayals, superior officers are aggressive and tough-minded, conscientious and incorruptible, low-keyed and cautious.

Using those criteria determined by supervisors and managers (PC, SR, and OPS) we find that factors I (tough-minded) and E (aggressive) are significant in discriminating superior officers. Although factor O (self-assured) was not cross-validated, previous work by Cattell et al. (1970a) has noted, as does this research, the positive relationship of O to the criterion of automobile accident frequency. The direction of E reflects a disposition toward dominance or ascendance and is positively correlated with social status. Occupationally, higher dominance scores are achieved by athletes, research scientists, and airmen. Factor I describes a "tough-minded-tender-minded" dimension along which police officers are clearly grouped on the tough-minded pole, as are commercial pilots, mechanics, and individuals having a history of greater aggressiveness and greater participation in athletics.

These results also support the homogeneity of the police officer personality suggested by Mills, McDevitt, and Tonkin (1964) and Gottesman (1975) using the MMPI. It is interesting to recall the description of police applicants from Mills et al. (1964) as cited by Gottesman (1975):

The typical police officer is "tough-minded"; he seldom dwells upon or reveals personal weaknesses, and prefers to present himself to others as impregnable; he

is typically energetic, enterprising and outspoken; he tends to be somewhat exhibitionistic; he is outgoing, socially skilled and enjoys the company of others; the typical officer appears more aggressive and hostile than the "normal" male. (p. 78)

This description is also similar to results found by Gottesman (1975) and to those reported here. In fact, a striking homogeneity is observed among data developed at various geographical locations by different researchers at different times (Cincinnati, Mills et al., 1964; New Jersey, Gottesman, 1966-69; and Los Angeles, Snibbe et al., 1975).

The findings reported here are in contrast to earlier attempts to link psychological paper-and-pencil tests (the MMPI) to the same criteria (Azen et al., 1974). In that study the only significant predictor of PC was peer-ranking obtained during training. Although both the 16 PF and the MMPI point to the same personality description, only the 16 PF shows a statistical relationship to performance criteria. This recalls our distinction between "screen out" and "select in" decision making.

Although 16 PF does not show a highly significant relationship to police performance criteria, we believe it merits inclusion in a larger array of assessment procedures which would include bio-data, group performance, role-playing, simulations, and behavioral sampling.

REFERENCES

- Azen, S. P., Snibbe, H. M., & Montgomery, H. R. A longitudinal predictive study of success and performance of law enforcement officers. *Journal of Applied Psychology*, 1973, 57, 190-192.
- Azen, S. P., Snibbe, H. M., Montgomery, H. R., Fabricatore, J., & Earle, H. Predictors of resignation and performance of law enforcement officers. *American Journal of Community Psychology*, 1974, 2, 79-86.
- Baehr, M. E., Furcon, J. E., & Froemel, E. C. *Psychological assessment of patrolman qualifications in relation to field performance*. Washington, D.C.: Law Enforcement Assistance Administration, U.S. Department of Justice, 1968.
- Blum, R. H. *Police selection*. Springfield, Ill: Charles C Thomas, 1964.
- Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. *Handbook for the Sixteen Personality Factor Questionnaire*. Champaign, Ill.: Institute for Personality and Ability Testing, 1970. (a)
- Cattell, R. B., Eber, H. W., & Tatsuoka, M. M. *Handbook for the Sixteen Personality Factor Questionnaire* (Tabular Supplement No. 1). Champaign, Ill.: Institute for Personality and Ability Testing, 1970. (b)
- Cohen, B., & Chaiken, J. M. *Police background characteristics and performance: Summary*. New York: Rand Institute, R-999-DOJ, 1972.
- Gottesman, J. *The utility of the MMPI in assessing the personality patterns of urban police applicants*. Hoboken: Stevens Institute of Technology, 1975.
- Levy, R. J. Predicting police failure. *Journal of Criminal Law, Criminology and Police Science*, 1967, 58, 265-276.
- Mills, R. B., McDevitt, R. J., & Tonkin, S. *Selection of metropolitan police officers*. Paper presented at the American Psychological Association Convention, Los Angeles, California, September 1964.

- Snibbe, H. M., Fabricatore, J., & Azen, S. P. Personality patterns of White, Black, and Mexican-American patrolmen as measured by the Sixteen Personality Factor Questionnaire. *American Journal of Community Psychology*, 1975, 3, 221-227.
- Snibbe, H. M., & Grecik, J. *The physiological and psychological fitness condition of deputies assigned to the patrol function and its relationship to the formulation of entrance standards for law enforcement officers*. Washington, D.C.: Law Enforcement Assistance Administration, U.S. Department of Justice, 1974.