

The Law Enforcement Officer Stress Survey (LEOSS)

Evaluation of Psychometric Properties

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This study establishes the reliability and validity of the Law Enforcement Officer Stress Survey (LEOSS), a short early-warning stress-screening measure for law enforcement officers. The initial phase of LEOSS development employed the behavioral-analytic model to construct a 25-item instrument specifically geared toward evaluation of stress in this population. The purpose of the present study was to examine psychometric properties of the LEOSS. Results indicate this instrument has good levels of internal consistency, test-retest reliability, and validity. Potential applications of the LEOSS in clinical and research contexts are discussed. The next phase of research on the LEOSS is discussed, and suggestions for directions that future research in this area might take are offered.

Keywords: *assessment; law enforcement; police; stress; trauma*

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The field of police psychology is replete with anecdotal reports, case studies, and empirical research attesting to the high rates of stress and stress-related disorders in law enforcement professionals (see reviews by Miller, 2006; Reese, 1986; Sheehan & Van Hasselt, 2003). Indeed, a convergence of evidence accrued over the past two decades underscores the widespread contention that police work is extremely stressful. Moreover, the deleterious effects of stress on both police officers and their families have been well documented. Illustrative are the widely recognized problems of alcohol and substance abuse (Bibbens, 1986; U.S. House of Representatives. Select Committee on Children, Youth, and Families, 1991); anxiety, depression, and anger (Reiser & Geiger, 1984; Violanti & Patton, 1999; White & Honig, 1995); marital difficulties and domestic violence (Neidig, Russell, & Seng, 1992; Sheehan, 2000; Van Hasselt & Sheehan, 2000); and even self-inflicted injury or death (Sheehan & Warren, 2001; Violanti, 1996). Furthermore, it is noteworthy that the prevalence of these problems in law enforcement is generally viewed as substantially greater than in the general population (cf. Miller, 2006; Reese, 1986; White & Honig, 1995).

In addition, it has been estimated that between 25% and 30% of police officers have stress-based physical health problems, most notably high blood pressure, coronary heart disease, and gastrointestinal disorders (Brown & Campbell, 1994; Lord, Gray, & Pond, 1991; Terry, 1981). High levels of law enforcement stress also have serious implications for officer safety. As Blum (2000) cogently points out, "Many of the problems that are known to compromise the safety of officers' decision-making and judgment develop from how officers manage stress in their life and work Uncontrolled stress reactions in police officers can be expected to compromise the accuracy and timeliness of their mental activity" (p. 129).

More recently, increased investigative attention has been directed to the prevalence of posttraumatic stress disorder (PTSD), which appears to characterize a significant subgroup of police personnel exposed to trauma (see Blum, 2000; Kates, 1999). For example, in an evaluation of Ohio police officers, Robinson, Sigman, and Wilson (1997) found that 13% of their sample met criteria for PTSD. Carlier, Lamberts, and Gersons (1997) reported PTSD in 7% and lower levels of PTSD symptoms in 34% of a Dutch police sample with trauma exposure. Anecdotal accounts provided by clinicians in the field suggest that nearly one third of police officers suffer from PTSD or posttrauma stress responses that can seriously affect physical and mental health (Blum, 2000; Kates, 1999).

Concern about law enforcement stress is particularly acute given the frequent exposure of police to critical incidents and the burgeoning body of research documenting the negative emotional sequelae of these events. As articulated in the *Diagnostic and Statistical Manual of Mental Disorders* criteria for PTSD, critical or traumatic incidents are those that “the person experienced, witnessed, or was confronted with . . . that involved actual or threatened death or serious injury or a threat to the physical integrity of self or others” (American Psychiatric Association, 1994). Exposure to such incidents is well published as “a recognized part of the law enforcement experience” (Sheehan, Everly, & Langlieb, 2004).

Interestingly, research with law enforcement subjects has shown that even “routine” occupational stressors, not attributable to traumatic events (e.g., shift work, public attitudes, boredom, complaints about management and administration), may be important contributors to emotional maladjustment (e.g., Brown & Campbell, 1994; Morash & Haarr, 1995; Violanti & Aron, 1993). For example, Libermen et al. (2002) found that routine occupational stressors reported by urban police officers were better predictors of psychological distress than cumulative exposure to critical incidents. Perhaps even more important, participants with increased levels of routine work stressors experienced more stress symptoms in response to their most traumatic critical incidents. Liberman et al. (2002) conclude that exposure to routine occupational stress may be a risk factor for traumatic stress symptoms. This contention is consonant with the position of Sheehan and Van Hasselt (2003) who state that “clearly, large-scale critical incidents are stressful, but so are the numerous smaller scale events that so many law enforcement officers encounter on the job” (p. 12).

The above findings point to the importance of comprehensive stress prevention and intervention approaches for law enforcement. In response to this need, numerous police stress management programs have emerged (see Anderson, Swenson, & Clay, 1995; Band & Sheehan, 1999; Brown & Campbell, 1994; Sheehan, 1999; Sheehan et al., 2004). However, despite research in the trauma field supporting the value of early detection and intervention to reduce symptom consolidation in trauma victims in general (Everly & Lating, 1995; Taylor, 2006; Wilson & Keane, 2004), and police officers in particular (Sheehan et al., 2004; Sheehan & Van Hasselt, 2003), only a modicum of investigative effort has been expended on development of a law enforcement stress evaluation tool that (a) addresses the unique challenges and stress encountered by officers and (b) is brief in format to facilitate its use by a population that historically has resisted the mental health system.

In one such attempt, Van Hasselt, Sheehan, Sellers, Baker, and Feiner (2003) developed a brief, early warning screening measure of stress among law enforcement officers: the Law Enforcement Officer Stress Survey (LEOSS). The initial phase of development followed the behavioral-analytic method (described below), which incorporates stressful situations directly identified by the relevant consumer group: police officers. The purpose of the present study was to describe the second phase of LEOSS construction: examination of psychometric properties. This included evaluation of item consistency, test-retest reliability, and construct validity.

Development of the LEOSS

In the first phase of instrument development, Van Hasselt et al. (2003) used the behavioral-analytic model of test construction (see Freedman, Rosenthal, Donohue, Schlundt, & McFall, 1978; Van Hasselt, Kazdin, Hersen, Simon, & Mastantuno, 1985), which emphasizes assessment based on behavior-environment interactions identified in a criterion analysis, rather than on hypothetical personality characteristics (Goldfried & D’Zurilla, 1969; Kanfer & Saslow, 1965). This model also offers a more socially valid alternative given its inclusion of the targeted consumer group as primary contributors to the test development process (Romano & Bellack, 1980). The behavioral-analytic model consists of five steps that are described briefly below (see Van Hasselt et al., 2003, for a more detailed description):

1. **Situational analysis.** This involved identification of situations that police officers might typically find stressful. To accomplish this, we obtained an item pool of situations by asking law enforcement professionals ($N = 166$) from the Stress Management in Law Enforcement course at the FBI National Academy (taught at that time by our second author, D.C.S.) to list items that they felt were stressful in their work. Specifically, participants in this phase were asked, based on their experience in law enforcement, to “list five situations you find stressful.” From their 759 total responses, 89 unique situations were catalogued.
2. **Item development.** In this stage, the 89 situations were reworded into scenarios (e.g., “While responding to a burglary in progress, the dispatcher advises you of the possible presence of an armed and dangerous suspect”).
3. **Response enumeration.** The 89 scenarios became the basis of items for two rating scales. One rating scale evaluated the *likelihood* that a police officer respondent would encounter each situation depicted in the scenario. The second scale evaluated the *difficulty* of each situation for a police officer. These scales were rated (7-point scale; 1 = *not at all* and

- 7 = *very much*) by a second group of law enforcement professionals not involved in the situational analysis phase.
4. Response evaluation. This step involved identifying the optimal subset of scenarios for use as LEOSS items. Frequency distributions of likelihood and difficulty were constructed separately; a scenario was retained if it received a median rating of at least 4 (“neutral”) for likelihood and a median rating of at least 5 (“somewhat”) for degree of difficulty of the problem.
 5. Construction of the instrument. The 25 resulting situations composing the current LEOSS item set are listed in Table 1.

Evaluation of Psychometric Properties of the LEOSS

Participants

Ninety-one male and nine female police participants were recruited from a number of agencies at two locations: Anchorage, Alaska, and Broward County, Florida.

Demographic Characteristics.

The age of participants ranged from 26 to 56 years ($M = 41.19$ years; $SD = 7.65$). Fifty-seven percent ($n = 77$) of the sample were married, 5.2% ($n = 7$) were single, 3.7% ($n = 5$) were currently in a significant relationship, and 8.1% ($n = 11$) were divorced. Education levels ranged from less than 12 years of education to graduate degrees. All participants had considerable law enforcement experience ($M = 16.47$ years; $SD = 7.69$). Rank of participants ranged from officer (i.e., road patrol officer/deputy) to commander, with 53% of participants at the rank of sergeant or above.

Procedure

Potential participants were initially contacted on-site at the beginning of their shift or following a scheduled department meeting or training exercise. They were given a letter explaining the nature of the project and informed that participation was strictly voluntary, that it did not affect their job status in any way, and that they were free to discontinue involvement at any time without consequence or penalty. They were further informed that (a) they would be asked to complete a packet of surveys and (b) there was a possibility of their being selected for a retest within two weeks after they completed the first survey packet (this applied only to Broward County officers). They were also informed that they would not be paid or compensated

Table 1
Law Enforcement Officer Stress Survey (LEOSS) Items

Item	Scenario
1	You are called to a burglary in progress. The assailant may be armed.
2	You are called to respond to a silent alarm from a bank.
3	You are executing an arrest warrant for a violent criminal and are unsure of his/her location.
4	You are executing an arrest warrant when the suspect barricades himself/herself.
5	You respond to a major motor vehicle accident with multiple injuries and possible fatalities.
6	You are engaged in a promotional process.
7	You have been brought up on civil rights violations which are untrue.
8	You have plans with your family but work demands interfere and you are unable to go.
9	You are responsible to notify the parents of a child killed by a hit and run driver.
10	You are called to contain a public rally that is becoming agitated.
11	You are recruited to investigate a fellow officer.
12	You find that your subordinates did not complete the assignment you gave.
13	You must rely on employees that you feel are not trustworthy or incompetent.
14	You are trying to solve a high profile case while the public pressures for immediate results.
15	You have spent hours putting data into your computer, only to have it go down and data is lost.
16	You find that work is taking up more time, leaving you with little left for family and recreation.
17	You are unable to work on a project because your supervisor keeps changing the direction.
18	You are on your way to a high emergency call when the radio has interference.
19	Changing shifts has interfered with your sleep patterns.
20	You frequently argue with your spouse but are unable to resolve anything.
21	You are making progress on a case when pulled off for political reasons.
22	You are on a high pursuit chase in icy conditions.
23	You are investigating an officer's death in which suicide is suspected.
24	You have been injured and your back-up is late responding.
25	You respond to a shooting in progress between two gangs.

in any way, but that their participation might ultimately prove helpful in preventing problems in law enforcement personnel. Following completion of assessment packets, participants returned to regular duty.

Officers who consented to participate completed an informed consent form. Next, they were administered an initial assessment packet consisting of a demographic questionnaire and the self-report instruments described

below. Potential participants for the test-retest portion of the study ($n = 27$) all were randomly selected from the Broward Sheriff's Office sample and received their second packet 2 weeks after the first. They completed the measures in office space provided by the agency. An advanced level doctoral candidate in clinical psychology (A.S.M.), who was well trained in the use of all measures, was available to answer any questions during the evaluation process.

To ensure confidentiality, names and agencies were not recorded. Rather, identification numbers were used to score and enter data from the initial and test-retest assessment packets.

Measures

Demographic Questionnaire. A brief demographic questionnaire asked about the participants' age, marital status, education level, gender, number of years in law enforcement, and rank in their department. (Although we would have preferred to use a more comprehensive demographic form, e.g., including information about involvement in specialized units, number of prior marriages/divorces, and medical/physical/mental health history, our own prior and personal experiences with law enforcement personnel suggested that any perceptions of further intrusiveness in their lives would have led to significant attrition in our sample.)

LEOSS. The LEOSS (Van Hasselt et al., 2003), a screening tool (described above) specifically developed for law enforcement professionals, was the primary measure of interest in this investigation.

Police Stress Survey (PSS). The 60-item PSS (Spielberger, Westberry, Grier, & Greenfield, 1981) measures intensity and frequency of occurrence of specific stressors in law enforcement, and is probably the most frequently administered instrument of its kind in the field (Lieberman et al., 2002). Items were included based on an extensive review of the literature in the area, followed by ratings of officers on item clarity, amount of stress, and frequency of each situation (Spielberger, Grier, & Greenfield, 1982).

Reynolds Short Form A (RSF-A). The RSF-A (Reynolds, 1982) is an 11-item version of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960, 1964). It is designed to evaluate a tendency to respond in ways that elicit approval and avoid controversy. Higher scores reflect a tendency toward greater social desirability.

Table 2
Summary Statistics for Law Enforcement Officer
Stress Survey ($N = 100$)

Item	M^a	SD^a
01 Burglary	10.42	7.87
02 Panic Alarm	8.86	8.25
03 Violent Criminal	13.45	8.77
04 Barricade	9.61	6.51
05 Accident	14.31	9.48
06 Promotion Process	9.80	7.51
07 Internal Affairs	9.80	8.44
08 Family	19.19	12.75
09 Death Notification	11.84	8.13
10 Containment	9.18	6.19
11 Recruited	9.54	8.45
12 Subordinates	11.82	9.51
13 Employees	14.82	11.68
14 High Profile Case	11.38	9.02
15 Lost Data	16.37	10.79
16 Overtime Hours	21.03	12.02
17 Project	16.70	13.98
18 Code 3	8.33	7.35
19 Sleep Patterns	12.80	11.73
20 Spouse	8.73	11.07
21 Political	7.96	9.78
22 High Pursuit	8.21	9.05
23 Suicide	5.78	4.21
24 Back-up	10.14	8.73
25 Two Gangs	8.49	8.24
Scale	288.56	117.61

Note: a = Likelihood and Difficulty Category Combination.

Results

Preliminary Analyses

Table 2 presents the basis statistics (means and standard deviations) of the individual LEOSS items for the likelihood and difficulty category combination. The scale mean and standard deviation for the likelihood and difficulty combination were 288.6 and 117.6, respectively.

Tables 3 through 5 contain the correlation matrices of the likelihood (Table 3), difficulty (Table 4), and likelihood \times difficulty (Table 5) items.

Table 3
Correlation Matrix of Law Enforcement Officer Stress Survey Likelihood Scale Items

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
02	.75																								
03	.40	.32																							
04	.54	.51	.43																						
05	.39	.41	.27	.21																					
06	.10	.07	.08	.19	.10																				
07	.23	.31	.25	.37	.09	.28																			
08	.18	.21	.10	.11	.16	.36	.17																		
09	.34	.39	.27	.24	.43	.31	.29	.25																	
10	.60	.57	.35	.55	.28	.33	.42	.17	.35																
11	-.12	-.08	.04	.08	-.08	.40	.38	.18	.38	.12															
12	-.19	-.13	-.02	.14	.03	.35	.20	.36	.29	.10	.50														
13	.21	.25	-.04	.12	.07	.28	.39	.31	.28	.31	.32	.34													
14	.01	.09	.15	.28	.21	.28	.43	.17	.31	.25	.44	.46	.30												
15	-.03	.09	.18	.14	.07	.25	.35	.19	.20	.21	.34	.30	.21	.36											
16	.10	.15	.15	.03	.10	.35	.15	.58	.31	.18	.28	.37	.30	.22	.35										
17	.22	.26	.06	.27	.07	.35	.29	.47	.34	.40	.33	.34	.37	.30	.26	.54									
18	.29	.19	.03	.23	.04	.22	.23	.08	.24	.39	.21	.20	.13	.25	.21	.22	.41								
19	.24	.23	.11	.14	.24	.18	.19	.18	.17	.24	.03	.13	.30	.32	.28	.24	.35	.32							
20	.15	.14	.09	.22	.16	.10	.23	.14	.09	.20	.06	.07	.23	.25	.25	.21	.29	.34	.30						
21	.17	.21	.05	.26	-.01	.11	.27	.11	.11	.40	.22	.07	.27	.26	.31	.21	.49	.45	.30	.46					
22	-.14	-.12	-.08	-.02	.27	.16	.04	.18	.32	-.07	.23	.27	.02	.16	.24	.29	.10	-.07	.18	.02	.04				
23	.32	.27	.23	.35	.06	.11	.18	.11	.21	.34	.15	.09	.27	.22	.15	.10	.14	.33	.18	.23	.33	-.01			
24	.40	.33	.04	.23	.27	.02	.22	-.02	.27	.28	-.04	-.15	.17	.06	.18	.07	.28	.46	.42	.24	.29	.07	.30		
25	.59	.57	.27	.49	.27	.18	.32	.14	.36	.55	.07	-.05	.27	.26	.02	.12	.35	.35	.28	.19	.32	-.10	.43	.53	

Table 4
Correlation Matrix of Law Enforcement Officer Stress Survey Difficult Scale Items

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22	23	24	25	
02	.64																							
03	.43	.33																						
04	.40	.40	.62																					
05	.43	.38	.40	.33																				
06	.25	.25	.27	.37	.26																			
07	.27	.23	.21	.27	.39	.35																		
08	.18	.25	.08	.18	.29	.23	.27																	
09	.33	.23	.32	.34	.32	.18	.29	.41																
10	.51	.47	.35	.48	.45	.30	.57	.29	.31															
11	.09	.03	.25	.33	.28	.50	.40	.44	.40	.37														
12	.23	.31	.17	.23	.29	.34	.30	.47	.37	.38	.42													
13	.11	.26	.11	.14	.20	.24	.29	.50	.27	.27	.25	.61												
14	.19	.26	.29	.35	.24	.32	.36	.32	.21	.41	.38	.53	.47											
15	-.05	-.03	.13	.28	.07	.23	.14	.31	.36	.24	.49	.42	.29	.40										
16	.22	.19	.21	.37	.18	.34	.20	.54	.33	.26	.40	.34	.45	.40	.29									
17	.13	.27	.08	.20	.30	.27	.31	.49	.25	.42	.29	.49	.54	.45	.26	.45								
18	.22	.32	.28	.27	.27	.33	.37	.48	.28	.41	.33	.36	.43	.37	.39	.47	.42							
19	.35	.38	.23	.22	.24	.24	.32	.37	.31	.37	.13	.41	.35	.28	.06	.39	.39	.50						
20	.12	.14	.18	.34	.14	.34	.15	.28	.16	.18	.22	.22	.17	.18	.16	.32	.20	.42	.37					
21	.19	.31	.08	.20	.18	.13	.18	.36	.28	.31	.05	.21	.17	.14	.11	.25	.46	.38	.40	.37				
22	.09	.08	.19	.26	.23	.18	.07	.12	.20	.13	.09	.06	.03	.19	.20	.15	.10	.21	.07	.31	.26			
23	.27	.29	.32	.30	.25	.19	.06	.30	.32	.22	.19	.16	.19	.03	.21	.26	.12	.41	.29	.36	.32	.28		
24	.23	.34	.29	.24	.20	.27	.11	.39	.13	.24	.30	.22	.38	.23	.25	.39	.21	.56	.35	.29	.25	.20	.64	
25	.39	.42	.24	.25	.29	.31	.28	.27	.15	.50	.16	.34	.27	.25	.08	.24	.40	.46	.49	.19	.34	.19	.37	.53

Table 5
Correlation Matrix of Law Enforcement Officer Stress Survey Likelihood × Difficult Scale Items

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
02	.73																									
03	.40	.26																								
04	.29	.38	.48																							
05	.37	.34	.49	.40																						
06	.03	.13	.18	.32	.12																					
07	.10	.25	.17	.28	.25	.20																				
08	.05	.07	.03	.06	.25	.19	.11																			
09	.26	.28	.33	.28	.43	.16	.21	.32																		
10	.37	.44	.28	.54	.38	.38	.54	.10	.39																	
11	-.03	.07	.15	.26	.32	.30	.34	.20	.49	.29																
12	-.04	.05	.06	.22	.24	.32	.23	.42	.30	.33	.50															
13	.07	.19	-.04	.05	.14	.27	.46	.43	.37	.33	.38	.46														
14	.17	.29	.33	.37	.41	.22	.34	.22	.41	.35	.48	.46	.37													
15	-.15	-.03	.06	.18	-.02	.20	.24	.19	.23	.24	.30	.32	.18	.38												
16	.07	.10	.10	.07	.17	.20	.20	.61	.35	.07	.27	.42	.41	.26	.24											
17	.10	.27	-.02	.18	.14	.21	.29	.44	.32	.37	.35	.45	.43	.40	.28	.44										
18	.18	.29	-.05	.11	.12	.18	.25	.17	.13	.23	.21	.26	.14	.30	.15	.20	.42									
19	.32	.38	.28	.16	.35	.09	.38	.14	.11	.39	.07	.16	.26	.34	.17	.24	.26	.38								
20	.11	.18	.10	.30	.14	.23	.31	.18	.11	.35	.14	.15	.25	.11	.22	.21	.19	.28	.31							
21	.11	.25	-.11	.07	.06	.04	.26	.16	.19	.41	.08	.16	.23	.13	.30	.14	.50	.36	.33	.35						
22	-.17	-.15	.04	.03	.22	.14	.03	.20	.29	.02	.23	.12	.12	.14	.16	.28	.02	-.02	-.00	.09	.08					
23	.37	.30	.27	.18	.21	.03	.02	.09	.25	.14	.01	.01	.05	.06	.02	.16	.01	.05	.28	.27	.17	.04				
24	.37	.33	.12	.15	.19	.04	.30	.06	.23	.27	.03	-.10	.23	.12	.19	.18	.25	.41	.55	.29	.27	.02	.28			
25	.43	.48	.25	.39	.39	.18	.43	.11	.32	.56	.16	.09	.33	.36	.12	.07	.31	.32	.48	.18	.25	-.08	.24	.56		

Table 6
Reliability Coefficients for Law Enforcement Officer Stress Survey Items

	Likelihood		Difficulty		L × D	
	r_{xx}	r_{it}	r_{xx}	r_{it}	r_{xx}	r_{it}
01 Burglary	.210	.453	.263	.453	.312	.328
02 Panic Alarm	.357	.480	.327	.494	.490	.449
03 Violent Criminal	.560	.297	.493	.445	.721	.296
04 Barricade	.550	.497	.406	.548	.565	.439
05 Accident	.619	.338	.354	.484	.250	.475
06 Promotion Process	.698	.432	.552	.494	.569	.356
07 Internal Affairs	.409	.517	.447	.464	.477	.512
08 Family	.659	.422	.618	.588	.612	.428
09 Death Notification	.474	.569	.290	.497	.394	.552
10 Containment	.006	.620	.550	.628	.159	.622
11 Recruited	.109	.367	.459	.495	.106	.469
12 Subordinates	.515	.344	.687	.586	.548	.489
13 Employees	.593	.472	.716	.514	.766	.528
14 High Profile Case	.649	.502	.397	.534	.587	.583
15 Lost Data	.562	.425	.545	.394	.461	.350
16 Overtime Hours	.654	.480	.517	.571	.629	.485
17 Project	.692	.609	.636	.559	.664	.569
18 Code 3	.194	.460	.743	.674	.231	.429
19 Sleep Patterns	.579	.455	.646	.562	.549	.516
20 Spouse	.739	.374	.586	.436	.736	.400
21 Political	.235	.457	.394	.444	.582	.404
22 High Pursuit	—	.167	.188	.287	.108	.162
23 Suicide	.547	.405	.077	.475	.337	.273
24 Back-up	.338	.389	.572	.549	.415	.428
25 Two Gangs	.269	.544	.650	.551	.291	.545

Note: r_{xx} = test-retest correlation; r_{it} = corrected item total correlation.

Reliability

Temporal stability of each item was measured by way of test-retest correlations. Item internal consistency was measured by way of the corrected item total correlations (i.e., the correlation between each item and the total of all other items). The results of these are provided in Table 6 for likelihood, difficulty, and the combination. The test-retest correlation was robust for several items across both categories and the combination. The lowest correlation was .01 for the containment item in the likelihood category. All correlations for the combination fell between .11 and .74.

Table 7
Law Enforcement Officer Stress Survey Reliability Coefficients

Scale	r_{xx}	α
Likelihood	.578**	.874
Difficulty	.621**	.908
Full Scale	.672**	.874

Note: r_{xx} = test-retest coefficient; α = internal consistency coefficient.

** $p < .01$.

Table 8
Correlation Matrix of Law Enforcement Officer Stress Survey Scales, Police Stress Scale and Reynolds Short Form A

	LEOSSFS	LEOSSL	LEOSSD	PSS
LEOSSL	.732***			
LEOSSD	.680***	.110		
PSS	.407***	-.008	.512***	
RSF-A	-.129	.174	-.336**	-.238*

Note: LEOSSFS = LEOSS Full Scale; LEOSSL = LEOSS Likelihood Scale; LEOSSD = LEOSS Difficulty Scale; PSS = Police Stress Scale; RSF-A = Reynolds Short Form-A.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7 contains information on overall test-retest reliability (two-week interval) and internal consistency (coefficient alpha). Test-retest correlation coefficients were calculated for the likelihood ($r = .578$, $p < .01$) and difficulty ($r = .621$, $p < .01$) subscales, as well as the full scale ($r = .672$, $p < .01$) scores; as can be seen in the table, the alpha coefficients were .874, .908, and .874, respectively.

Validity

Table 8 provides the correlations between the LEOSS, PSS, and the RSF-A. The full scale of the LEOSS is moderately, but significantly, related to the PSS ($r = .407$, $p < .001$). This suggests that the LEOSS full scale measures somewhat of the same construct that is measured by the PSS. Moreover, the full scale is not significantly related to the RSF-A ($r = -.129$, ns). Of the three scores from the LEOSS, only the difficulty scale was significantly (and negatively) related to the RSF-A ($r = -.336$, $p < .01$).

Discussion

Police stress and stress-related disorders have been the focus of clinical and investigative activity for many years. Further, identification and evaluation of stress in law enforcement is critical for prevention and intervention. The purpose of this study was to examine some of the psychometric properties of an instrument specifically developed to provide early detection of stress in law enforcement officers: the LEOSS (Van Hasselt et al., 2003).

Results showed that the LEOSS had adequate internal reliability, with item-total correlations generally in the moderate to high range. Test-retest reliability coefficients were also moderate to high for the two LEOSS subscales (likelihood and difficulty) and full scale scores. Further, two of the three correlation coefficients between the LEOSS and PSS (difficulty and full scale) were in the moderate and statistically significant range. Finally, the LEOSS full scale was not significantly related to officer avoidance of possible stigma-causing admissions about their emotional state, as objectively measured by the RSF-A, suggesting that social desirability had a minimal impact on the assessment of stress in this law enforcement sample.

Several limitations of this investigation warrant mention. First, our study describes the second phase in construction of the LEOSS: psychometric validation. Overall, our findings indicate that this instrument has sound parametric properties. The next step is to obtain descriptive statistics from a clinical law enforcement sample to develop a scoring system that will have utility in detecting stress and, perhaps more important, stress level. One strategy might involve identifying scenarios with ratings over empirically determined cutoffs. Clinically, it might be useful to refer to high ratings on both likelihood and difficulty scales for a particular scenario for a particular officer. Then, a specific scenario or scenarios could be targeted for training of more effective response alternatives.

A second limitation concerns differences between the current sample and participants in the initial phase of LEOSS construction (Van Hasselt et al., 2003). The earlier investigation included law enforcement professionals attending the FBI National Academy, consisting of police veterans viewed as an elite group by virtue of their selection for this highly competitive and esteemed training program. The present study included police officers from local police agencies with a wider range of ranks. However, the current sample also had considerable experience (mean of more than 16 years in law enforcement), and more than half (53%) were at the rank of sergeant or above.

There are only a few extant, empirically based measures of stress specifically tailored to the unique needs and characteristics of the law enforcement population. The frequently cited PSS (Spielberger et al., 1981) consists of 60 items that were selected based on a review of literature in the area. The 144-item Critical Events Scale (Sewell, 1983) was developed “to assess the stressful events faced by a law enforcement officer . . . [and to] allow for better prediction and control in an officer’s life” (p. 110). However, both the PSS and Critical Events Scale are lengthy and dated, potentially making administration difficult and their relevance diminished given the changes and challenges in police work since their development.

Other stress measures for law enforcement have been reported more recently. For example, Toch (2002) developed a 46-item questionnaire for a comprehensive study of stress in police that was constructed by “consensus” of officer subgroups who generated stress-based questions. This measure examines several areas, including work and family stress, work satisfaction, and perceptions of conflict and discrimination. The Work Environment Inventory (WEI) was designed “to assess exposure to routine work stressors, while excluding duty-related traumatic stressors [critical incidents]” (Lieberman et al., 2002). All 68 WEI items are presented as statements (e.g., “I am under a lot of pressure to produce results”). Finally, the Critical Incident History Questionnaire (CIHQ; Weiss et al., 2001) asks police respondents to report frequency of exposure to 34 police-related critical incidents (e.g., being shot at, encountering a dead body, making a mistake that led to serious injury or death). And similar to the LEOSS, officers rate how difficult it would be to deal with each incident.

The heightened investigative efforts over the past several years to construct and refine stress assessment for law enforcement are long overdue, and encouraging. Given the burgeoning body of evidence showing that law enforcement professionals are at extreme risk for stress-related disorders, such work is urgently needed. Once development is complete, we anticipate that the LEOSS will be a short, easily administered screening measure of stress, having heuristic value in both clinical and research contexts.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Anderson, W., Swenson, D., & Clay, D. (1995). *Stress management for law enforcement officers*. Englewood Cliffs, NJ: Prentice Hall.
- Band, S. R., & Sheehan, D. C. (1999). Managing undercover stress: The supervisor’s role. *FBI Law Enforcement Bulletin*, 68, 1-6.

- Bibbens, V. E. (1986). Quality of family life and marital life of police personnel. In J. T. Reese & H. A. Goldstein (Eds.), *Psychological services for law enforcement*. Washington, DC: U.S. Government Printing Office.
- Blum, L. N. (2000). *Force under pressure: How cops live and why they die*. New York: Lantern Books.
- Brown, J. M., & Campbell, E. A. (1994). *Stress and policing: Sources and strategies*. New York: Wiley.
- Carlier, N. E., Lamberts, R. D., & Gersons, B. P. (1997). Risk factors for posttraumatic stress symptomatology in police officers: A prospective analysis. *Journal of Nervous and Mental Disease*, 185, 498-506.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354.
- Crowne, D. P., & Marlowe, D. (1964). *The appraisal motive: Studies in evaluative dependence*. New York: Wiley.
- Everly, G. S., & Lating, J. M. (1995). *Psychotraumatology: Key papers and core concepts in post-traumatic stress*. New York: Plenum.
- Freedman, B. J., Rosenthal, L., Donohue, C. P., Schlundt, D. G., & McFall, R. M. (1978). A social-behavioral analysis of skill deficits in delinquent and nondelinquent adolescent boys. *Journal of Consulting and Clinical Psychology*, 46, 1448-1462.
- Goldfried, M. R., & D'Zurilla, T. A. (1969). A behavioral-analytic model for assessing competence. In C. D. Spielberger (Ed.), *Current topics in policing*. Washington, DC: U.S. Government Printing Office.
- Kanfer, F. H., & Saslow, G. (1965). Behavioral analysis: An alternative to diagnostic classification. *Archives of General Psychiatry*, 12, 529-538.
- Kates, A. R. (1999). *Copshock: Surviving posttraumatic stress disorder*. Tucson, AZ: Holbrook Street.
- Lieberman, A. M., Best, S. R., Metzler, T. J., Fagan, J. A., Weiss, D.S., & Marmar, C.R. (2002). Routine occupational stress and psychological distress in police. *Policing: An International Journal of Police Strategies and Management*, 25, 421-439.
- Lord, V. B., Gray, D. O., & Pond, S. B. (1991). The Police Stress Survey: Does it measure stress? *Journal of Criminal Justice*, 19, 139-150.
- Miller, L. (2006). *Practical police psychology: Stress management and crisis intervention for law enforcement*. Springfield, IL: Charles C. Thomas.
- Morash, M., & Haarr, R. N. (1995). Gender, workplace problems, and stress in policing. *Justice Quarterly*, 12, 113-136.
- Neidig, P. H., Russell, H. E., & Seng, A. F. (1992). Interspousal aggression in law enforcement: A preliminary investigation. *Police Studies: The International Review of Police Development*, 15, 3-38.
- Reese, J. T. (1986). Policing the violent society: The American experience. *Stress Medicine*, 2, 233-240.
- Reiser, M., & Geiger, S. (1984). The police officer as a victim. *Professional Psychology: Research and Practice*, 15, 315-323.
- Reynolds, W. M. (1982). Development of a reliable and valid short form of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 38, 119-125.
- Robinson, H. M., Sigman, A. R., & Wilson, J. P. (1997). Duty-related stressors and PTSD symptoms in suburban police officers. *Psychological Reports*, 81, 835-845.
- Romano, J. M., & Bellack, A. S. (1980). Social validation of a component model of assertive behavior. *Journal of Consulting and Clinical Psychology*, 48, 478-490.

- Sewell, J. D. (1983). The development of a Critical Life Events Scale for law enforcement. *Journal of Police Science and Administration, 11*, 109-116.
- Sheehan, D. C. (1999). Stress management in the Federal Bureau of Investigation: Principles for program development. *International Journal of Emergency Mental Health, 1*, 39-42.
- Sheehan, D. C. (Ed.). (2000). *Domestic violence by police officers*. Washington, DC: U.S. Government Printing Office.
- Sheehan, D. C., Everly, G. S., & Langlieb, A. (2004). Current best practices: Coping with major critical incidents. *FBI Law Enforcement Bulletin, 73*, 1-13.
- Sheehan, D. C., & Van Hasselt, V. B. (2003). Identifying law enforcement stress reactions early. *FBI Law Enforcement Bulletin, 72*, 12-17.
- Sheehan, D. C., & Warren, J. L. (Eds.). (2001). *Suicide and law enforcement*. Washington, DC: U.S. Government Printing Office.
- Spielberger, C. D., Grier, K. S., & Greenfield, G. (1982, Spring). Major dimensions of stress in law enforcement. *Florida Fraternal Order of Police Journal, 10*-12.
- Spielberger, C. D., Westberry, L. G., Grier, K. S., & Greenfield, G. (1981). *The Police Stress Survey: Sources of stress in law enforcement* (Human Resources Institute Monograph Series Three, No. 6). Tampa, FL: University of South Florida, College of Social and Behavioral Sciences.
- Taylor, S. (2006). *Clinician's guide to PTSD: A cognitive-behavioral approach*. New York: Guilford.
- Terry, W. (1981). Police stress: The empirical evidence. *Journal of Police Science and Administration, 9*, 61-75.
- Toch, H. (2002). *Stress in policing*. Washington, DC: American Psychological Association.
- U.S. House of Representatives. Select Committee on Children, Youth, and Families. (1991, May). *On the Front Lines: Police stress and family well-being*. Hearing before Select Committee on Children, Youth, and Families. Washington, DC: U.S. Government Printing Office.
- Van Hasselt, V. B., Kazdin, A. E., Hersen, M., Simon, J., & Mastantuno, A. K. (1985). A behavioral-analytic model for assessing social skills in blind adolescents. *Behaviour Research and Therapy, 23*, 395-405.
- Van Hasselt, V. B., & Sheehan, D. C. (2000). Introduction. In D. C. Sheehan (Ed.), *Domestic violence by police officers*. Washington, DC: U.S. Government Printing Office.
- Van Hasselt, V. B., Sheehan, D. C., Sellers, A. H., Baker, M. T., & Feiner, C. (2003). A behavioral-analytic model for assessing stress in police officers: Phase I. Development of the Law Enforcement Officer Stress Survey (LEOSS). *International Journal of Emergency Mental Health, 5*, 77-84.
- Violanti, J. M. (1996). *Police suicide: Epidemic in blue*. Springfield, IL: Charles C. Thomas.
- Violanti, J. M., & Aron, F. (1993). Sources of police stressors, job attitudes, and psychological distress. *Psychological Reports, 72*, 899-904.
- Violanti, J. M., & Patton, D. (Eds.). (1999). *Police trauma: Psychological aftermath of civilian combat*. Springfield, IL: Charles C. Thomas.
- Weiss, D., Brunet, A., Best, S. R., Metzler, T. J., Liberman, A., Rogers, C., et al. (2001). *The Critical Incident History Questionnaire: A method for measuring total cumulative exposure to critical incidents*. Unpublished manuscript.
- White, E. K., & Honig, A. L. (1995). Law enforcement families. In M. I. Kurke & E. M. Scrivner (Eds.), *Police psychology into the 21st century*. Hillsdale, NJ: Lawrence Erlbaum.
- Wilson, J. P., & Keane, T. M. (Eds.). (2004). *Assessing psychological trauma and PTSD*. New York: Guilford.

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