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Implications of Machine-Learning, Internet-Tests to Save Lives and Money: "7-Point Violence Profile:" Review of 212 Studies, 320,051 Persons, Over 95 Years, With a Cross-Validation Among 136 Homicidal, Overdosing-Substance-Abusing, Sex-Offending, Suicide-Completers, and Controls

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Abstract

Analysis of 136 persons with psychopathology, suicidal ideation, violence included: (a) 79 adults [12 homicidal, 13 overdosing-substance-abusers, 15 sex-offending, 15 suicide-completers, 24 controls (23 women, 56 men) M_{age}=38.29]; (b) 57 teens [11 homicidal, 7 overdosing-substance-abusers, 10 sex-offending, 17 suicide-completers, 12 controls (15 girls, 42 boys) M_{age}= 15.37] given (Standard Predictor of Violence Potential (SP), Quick Test (QT), Beck Scale (BSS), MMPI-2/A, Raven Matrices). Significant ($p < .05$) *ANOVA Fs* were: (a) adults (SP, BSS, MMPI-2 [VRIN, F, F_B, F_P, L, K, S, Hs (1), D (2), Pd (4), Mf (5), Pa(6), Pt(7), Sc (8), Ma (9), Si (10), MAC-R, APS, AAS], Raven; (b) teens (SP, BSS, MMPI-A [F_1, F, L, K, D (2), Pa (6), Sc (8)], QT. At-risk, adults, teens had the same “7-point violence profile” (SP -, “F/L-2-4-6-8-AAS(ACK)”) [insignificant differences ($p < .05$) *ANOVA-Fs*: SP, BSS, MMPI-2/A: F, L, K, D (2), Pd (4), Pa (6), Sc (8)].

Keywords: machine-learning, internet-testing violence-prediction, homicidal, overdosing, sex-offending, suicide-completers

For over 500 years, academics and business persons developed risk equations to save lives and money. There were 212 studies of 320,051 persons over 95 years, demonstrating a consistent, reliable, sensitive, specific and valid "7-point violence profile”, consisting of eight measures (violence potential [Standard Predictor], suicide ideation [Beck Scale of Suicidal Ideation], deception [faking and lying], depression, psychopathic deviance, paranoia, schizophrenia, and addiction [MMPI-2/A]). We confirmed this "7-point violence profile" in a random, adult, and teen sample of 136 by comparing homicidal, overdosing-substance-abusing, sex-offending, and suicide-completers with controls. Not only do these four different groups have this "7-point violence profile" (See Figures 4 and 5), but the profile is similar for each of these four at-risk groups, and the same for at-risk adults or teens. Why is demonstrating a "7-point violence profile" crucial? Over the past 28 years, 3,989,552 victims (sex offenders and deaths), and $7,575,181,909,483 were lost (see Table 4). The current study is consistent with the implication and proposal, which wider machine-learning, internet-test

(MLIT) use by court, hospital, and human resource professionals can result in saving lives and expense over the next 28 years, and onward.

MLIT are inexpensive, objective, reliable, sensitive, specific, and valid, featuring 97% accuracy and precision in finding at-risk, compared with current ways or approaches (background-credit checks, interviews-judgment, medical exams, and paper-and-pencil tests) at 39% [that is a miss rate or inaccuracy and imprecision of 61%]. Currently, most court, hospital, and human resource professionals use conventional ways, which have a combined sensitivity-specificity of .39 (Zagar, Zagar, Arbit, Bartikowski, Busch, *et al*., 2008; Zagar and Grove, 2010; Zagar, Kovach, Basile, Hughes, and Grove, 2013; Zagar, Zagar, Zagar, Busch, Garbarino, Ferrari, *et al*., 2016). See Figure 1.

Why are the current ways less than chance accurate? Perhaps, as Pope, Butcher and Seelan (2006) demonstrate, that the popular MMPI Second and Adolescent Editions (MMPI-2/A) have seven objective, reliable, sensitive, specific and valid measures of deceptive self-presentation (infrequency, lying, defensiveness, faking at the back of the test, true inconsistency, false inconsistency, and superlative self-presentation). If one takes these seven different deceptive self-presentations, and puts them into a Poisson's distribution of seven (validity scales measuring deceptive self-presentation) 7 x 6 x 5 x 4 x 3 x 2, that results in 40,300 ways to deceive a court, hospital or human resource professional. This is further complicated by the fact that there are 1,000 neurological and psychiatric illnesses (International Classification of Diseases Tenth Edition, World Health Organization, 2013 and Diagnostic Statistical Manual Fifth Edition, American Psychiatric Association, 2013), which results in a total of 40,300,000 deceptive, neurological and psychiatric, self-presentations. Given 40,300,000 ways to deceptively self-present, MLIT must be added to current methods of assessment, which court, hospital, and human resource professionals use.

No human can match a computer equation, that can compare the person, against millions in data bases and recall millions of equations simultaneously (Siegel, 2016; Zagar, *et al*., 2016). A computer can remember 40,300,000 equations, and match the individual against hundreds of thousands of persons, for which both test data and criterion information (i.e., homicide, mass murder, overdose, sex-offending, and suicide) exist. See Figure 2. This deceptive self-presentation along with the fact that only computer algorithms can reliably, sensitively, specifically and validly identify at-risk (homicidal, overdosing-substance-abusing, sex-offending and suicide-completers), partially accounts for the 3,989,552 victims (sex-offenders and deaths) and $7,575,181,909,483 lost over the past 28 years (see Table 4).

Most court hospital and human resource professionals are not statistically savvy enough to realize that the conventional approaches of background-credit checks, interviews-judgment, medical exams, and paper-and-pencil tests have a combined 39% hit rate, which is less than chance. For nearly seven decades, these professionals believe their interview skills and judgment are better than a computer algorithm despite the scientific evidence to the contrary. In a perverse reverse logic, these same professionals consider themselves superior to a logical, objective computer equation, when in fact they are less than chance accurate. So, the purpose of this paper is to demonstrate that for nearly a century in examining a third of a million of persons, an objective, reliable, sensitive, specific, and valid "7-point violence profile" exists, and should be used with MLIT to predict and prevent homicide, overdosing-substance-abusing, sex-offending, and suicide-completers.

Paper Outline: Seven Sections (1-7)

This paper includes: (a) the costs of using current ways of finding risk; (b) a contrast of the current ways of assessment versus MLIT, actuarial assessment; (c) the four reviews of the MMPI/MMPI-2/A studies on (1) homicidal, (2) overdosing-substance-abusing, (3) sex-offending, and (4) suicide-completers; (d) the two sets of reviews on dangerous and violent behavior in (1) teens and (2) adults; (e) the summary of the common "7-point violence profile" across homicidal, overdosing-substance-abusing, sex-offending and suicide-completers, namely high Standard Predictor of Violence Potential (SP) scores, and increased "L/F-2-4-6-8-AAS(ACK)" MMPI-2/A profiles of lie, infrequency, depression, psychopathic-deviate, paranoia, schizophrenia and addiction (admission or acknowledgement); (f) the presentation of a cross-validation study with the MLIT on 136 homicidal, overdosing-substance-abusing, sex-offending, suicide-completers vs. controls demonstrating the "7-point violence profile"; and (g) the discussion of how applying MLIT more widely might save millions of lives and trillions in U.S. dollars.

1. The Costs of Using Current Ways of Finding Risk

There are costs of using current ways without MLIT, which have a sensitivity-specificity of .91-.99 (Zagar et *al.*, 2008; 2010; 2013; 2016). The challenge in finding at-risk was deceptive self-presentation among those with neurological and psychiatric illnesses not discovered with current ways. The twelve issues of using the current ways at intake, discharge or promotion include: (1) the psychiatric over hospitalization avoided due to insensitive, nonspecific diagnosis; (2) the civilian homicides, overdoses, and suicides, not found at courts, hospitals and human resources; (3) the air, bus, train, and truck transport deaths, not predicted and prevented during routine physicals; (4) the cumulative daily and yearly, veteran suicides, not found, when former military are discharged, or seek medical attention; (5) the professional athlete,

coach, and trainer crimes and sex-offending, that cause loss of earnings, ticket and merchandise sales; (6) the nonprofit, religious groups pedophilia payouts, and lost collections, due to not screening at intake and promotion; (7) the jailing nonviolent and or mentally ill offenders, rather than diverting to electronic monitoring bracelets or other diversions; (8) the health care worker, physician, professor, teacher, and caretaker losses from violence to self and others, from not assessing; (9) the public-safety, personnel suicides, deaths-in-the-line-of-duty, and malfeasance payouts from not screening; (10) the mentally ill, mass murderers or active shooters, not found when seeking medical services, employment or police contact by failing to discover bipolar, schizophrenic, paranoid or other psychiatrically impaired persons; (11) the energy worker (coal, electricity, nuclear, oil, petroleum, and solar) losses from violence at routine physicals; and (12) the military (including national guard) homicides and suicides, by not screening at draft, promotion, discharge from service, or post-battlefield experience. See Table 4. The importance of using MLIT added to the current approaches is also emphasized in the nearly 129,435 U.S. 2016 combined homicides, mass murders, overdosing-substance-abusing, sex offenses, and suicides (FBI, 2012, Zagar, *et al.* 2016, CDC, 2017, 2018). There are also 861,837 U.S. convicted sex-offenders (U.S. Department of Justice, Bureau of Justice Statistics, 1997, National Center for Missing and Exploited Children, 2017).

2. Contrast of the Current Ways of Assessment vs. MLIT Actuarial Assessment

See Figure 1 for a comparison of the current ways contrasted with MLIT. There are paper-and-pencil tests, interviews and judgment, medical exams, and the modern MLIT: (a) the paper-and-pencil, violence risk tests, have a mean sensitivity and specificity of .73 [as contrasted with a miss rate of 27%] (Quinsey, Harris, Rice, and Courmier, 1998, 2006, 2015; Hanson and Thornton, 2000; Monahan *et al*., 2000); the background-credit checks hit rate is .25 [as compared with a miss rate of 75%](Quinsey, Harris, Rice, and Cormier, 1998; 2006; 2015); (b) the interviews and judgment, have an average hit rate of .46 (as opposed to a miss rate of .54) [Sepejak, Menzies, Webster, and Jensen, 1983; Lidz, 1993; Monahan, 1996; Rice, Harris, and Quinsey, 1996]; (c) in 2,200 medical and psychiatric exams, there is a mean .49 hit rate [versus a miss rate of 51%, which exceeds chance] (Hsieh, Gutman, and Haliscak, 2000; Loke, Liaw, Tiong, Ling, and Chang, 2002; Madan and Harley, 2003; Bueno-de-Mesquita, Nuyten, Wesseling, van Tinteren, Linn, and van de Vijver, 2009; Zagar, Kovach, Basile, Hughes, Grove, *et al.*, 2013); and (d) the Standard Predictor of Violence Potential, along with the MMPI-2/A, have a *combined* specificity and sensitivity for deception, mental illness, substance abuse and violence of 0.97 (Zagar and Grove, 2010; Zagar, Kovach, Basile, Hughes, Grove, *et al.*, 2013) for homicidal, overdosing-substance-abusing, sex-offending and suicide-completers.

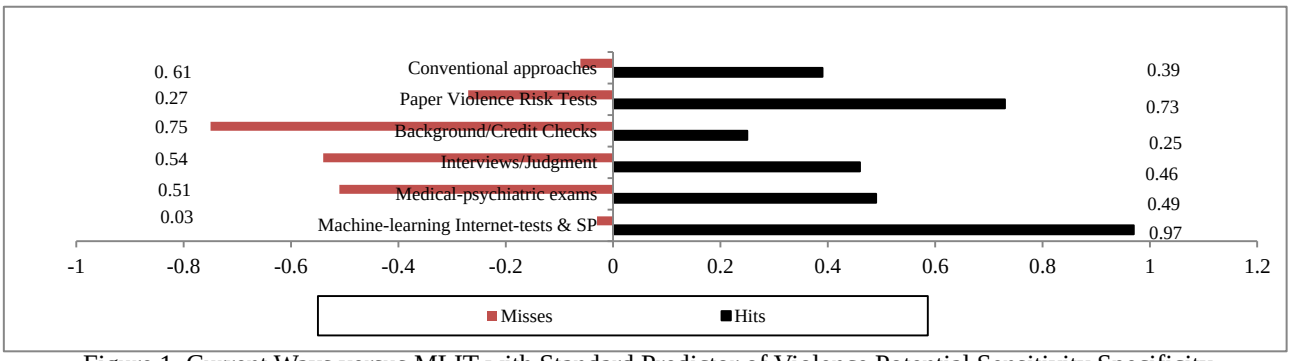

Figure 1. Current Ways versus MLIT with Standard Predictor of Violence Potential Sensitivity Specificity

2.1 MLIT Actuarial Assessment

Zagar and Grove (2010) with *N*=2,722 showed that homicide, sex offending, and assault was predicted accurately and precisely (*AUC* for 1,595 adults = .99, *AUC* for 1,127 youth =.91 and *AUC* = .96 for 2,722 combined). Zagar, Kovach, Basile, Hughes, Grove *et al*., 2013, and Zagar, *et al*., 2016 showed that MLIT, actuarial assessment is more objective, reliable, sensitive, specific and valid, than current approaches with .97 vs .39, for homicide, sex-offending and suicide. In a 50 year meta-analysis of suicide research, Franklin, Fox, Bentley, Kleiman, Huang, *et al*., (2017) discovered that MLIT was superior to find risk factors for suicidal thoughts and behavior. For suicide, Walsh, Ribeiro, and Franklin (2017) developed MLIT algorithms that accurately predicted future suicide attempts (*AUC* = 0.84, precision = 0.79, recall = 0.95, Brier score = 0.14). In neurology, Titano, Badgely, Schefflein, Pain, Andres, Michael *et al*., 2018 showed that the MLIT algorithm could decide whether a CAT scan of an emergency room patient demonstrated signs of a stroke, by using automated deep-neural-network surveillance of cranial images for acute neurologic events that are 150 times faster than a human judge. In retinal disease, DeFauw, Ledsam, and Ronneberger (2018) found that clinically applicable deep learning was superior, because there is a shortage of experts who can interpret the millions of diagnostic eye exams performed each year. Artificially intelligent assistants help immensely.

So MLIT actuarial assessment is the future for at-risk persons. The purpose of this study is to show that adding MLIT to

the current ways of assessing persons in courts, hospitals, and human resources if more widely used would eventually save lives and expense. The aim is to confirm or cross-validate in an independent randomly selected sample that this "7-point violence profile" exists. We will not cover the entire literature on these tests and the diversions, interventions or treatments, of these at-risk states and tests used in finding these at-risk. The results of a small cross-validation sample of 136 are presented which demonstrate the persistent results of this earlier research reviewed. Finally, there is discussion of how to save lives and expense by applying MLIT in the twelve above mentioned issues listed in Table 4.

3. MMPI/MMPI-2/A Studies of Homicidal, Overdosing-Substance-Abusing, Sex-Offending, & Suicide-Completers

On the MMPI, MMPI-2/A over 95 years (1923 to 2017), there were 141 studies of 128,435 homicidal or violent prone, overdosing-substance-abusing, sex-offending, and suicide-completers, in five countries and two continents. Among these studies, there was a consistent pattern of the elevated deception, depression, psychopathic deviate, paranoia, schizophrenia and addiction scales or "L/F-2-4-6-8-AAS (ACK)" MMPI/MMPI-2/MMPI-A subtests across the abovementioned at-risk groups. See Tables 1a, 1b, 1c, and 1d.

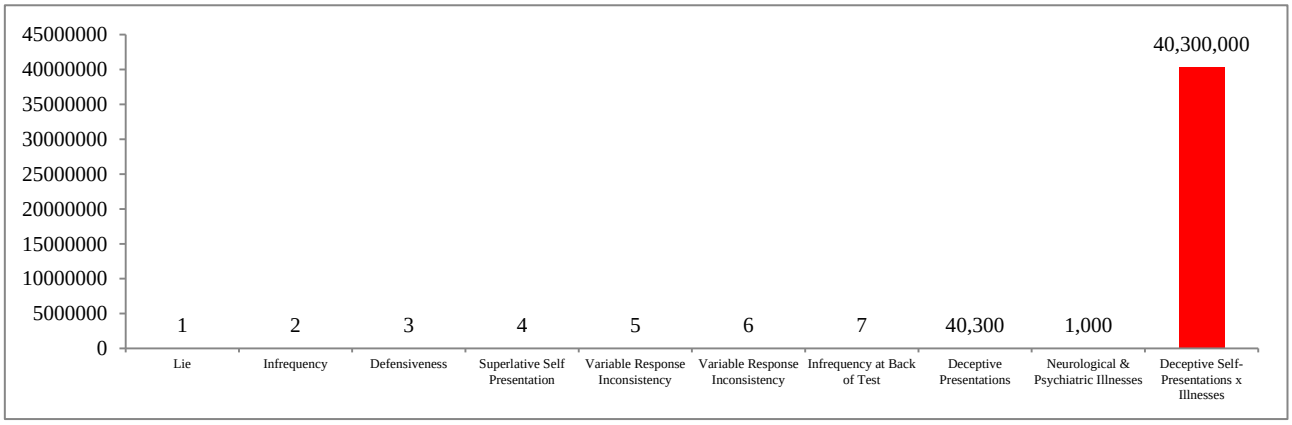

Figure 2. 40,300,000 Deceptive, Neurologic and Psychiatric Self-Presentations

Over 95 years, among 70 studies of 160,130, there were also consistent results of finding "return to court" or violence re-offending or "dangerous" behavior (probation and parole decision making tests). Researchers repeatedly proved that one can predict "return-to-court" or dangerous violent reoffending or "dangerous" behavior, to detect, apprehend, re-convict, and imprison the recidivist prone person. Combining the MMPI-2/A and probation and parole decision making tests like the Standard Predictor of Violence Potential resulted in 212 studies of 320,051 over 95 years, which conclusively are consistent with the "7-point violence profile."

3.1 Homicidal, MMPI and MMPI-2/A Studies: "7-Point Violence Profile"

Among 21,130 homicidal, serial killing, and violent offenders in 44 studies over 65 years, there were consistent elevations of deception, depression, psychopathic deviate, paranoia, schizophrenia, and addiction scales or a high "F-2-4-6-8" MMPI-2 profile (See Table 1a). This included: infrequency (F); depression (2); psychopathic deviate (4); paranoia (6); and schizophrenia (8) MMPI scaled scores and familial discord (Pd1); authority problems (Pd2); social (Pd4); and self-alienation (Pd5) subscales ["Pd1, Pd2, Pd4, Pd5"]. There were high "4" scores, in 37 studies (*n*=20,159). There were elevated "4-6-8" scores, in 30 studies (*n*=16,554). There were elevated "F" scores among 26 researchers (*n*=13,909). There were increased "F-4-6-8" scores, within 21 papers (*n*=13,484). There were high "2-4-8" subtest scores, within 24 papers (*n*=12,081). There were elevated "2-4-6-8" scores, in 23 papers (*n*=11,528). There were above normal "F-2-4-6-8" scores, in 17 experiments (*n*=10,355). There were significantly raised "Pd1-2-4-5"scores, in 4 papers (*n*=629). *There was a reliable pattern of high "F-2-4-6-8-Pd1-2-4-5"scores.* However, many believe that the MMPI alone cannot differentiate homicidal, serial killing or violent proclivity. This is why parole and probation decision making test and the Standard Predictor of Violence Potential, were developed to be used with the MMPI. These measures of violence add to the MMPI-2/A or other tests and increase objectivity, reliability, sensitivity specificity, and validity by finding all four risk domains (deception, psychopathology, substance abuse, and violence). In studies by Zagar and Grove (2010) and Zagar, *et al.*, (2013), the Standard Predictor of Violence Potential with the MMPI-2/A and BSS, measures all four risk domains (deception, psychopathology, substance abuse, and violence potential) with 97% sensitivity-specificity. Given thousands of cases, and dozens of studies in different places and unique times, *homicidal, serial killers and violent prone, have a consistent elevated SP, BSS and "F-2-4-6-8" MMPI/MMPI2/A scores.*

Table 1a. Summary of MMPI, MMPI-2/A, and Standard Predictor for Homicidal (1 of 4)

Risk		Study	Sample	High Test/Subtest
Homicidal	1	Fry, 1949	98 men, 109 female prisoners, 121 men, 115 women students, 443 total	Males, 1-2-4-6-8-9 females, 1-3-9
44 Studies	2	Clark, 1952	136 disciplined, Army, prisoner soldiers	2-4-9
21,130	3	Smith, 1955	400 violent and 400 nonviolent prisoners, 800 total	4
MMPI	4	Rosen & Mink, 1961	52 Male violent and nonviolent prisoners and controls	2-3-4-6
F-2-4-6-8	5	Lawton & Kleban, 1965	32 Violent and nonviolent prisoners	4-9
Pd1-2-4-5	6	Jacobson & Wirt, 1968	100 Violent and 100 nonviolent prisoners, total 200	2-3-7
Standard	7	Davis & Sines, 1971	500 patients, 1,136 prisoners, 625 students, 30 Violent, total 2,361	3-4
Predictor	8	Persons & Marks, 1971	48 violent prisoners	3-4 (85% had violence history)
of	9	Sutker & Moan, 1973	104 Violent and nonviolent prisoners	F-4-9
Violence	10	Panton, 1976	21 murderers, 11 rapists, 2 robbers = 34 of 2,551 death row prisoners	F-2-4-6-8
Potential	11	Megargee, 1977	1,213 + 443 violent + nonviolent prisoners, 60 serial killers, total 1,716	F-4-6-8
BSS	12	Rader, 1977	46 assaulters	4-8 (assaulters)
	13	Sutker, Allain, & Geyer, 1978	150 male and 180 female murderers, 330 total	F-K-4-5
	14	Megargee & Bohn, 1979	1,344 violent offenders	4-6-8
	15	Quinsey, Arnold & Pruesse, 1980	150 murderers and violent prisoners	2-4-6-8
	16	Jones, Beidleman, & Fowler, 1981	141 violent and nonviolent prisoners	F-6-7-8 (72% violent)
	17	Holcomb & Anderson, 1983	110 murderers	2-4
	18	Holcomb, Adams, Ponder, & Anderson, 1984	96 murderers	F-6-8
	19	Holcomb & Adams, 1985	259 murderers	2-4
	20	Holcomb, Adams, & Ponder, 1985	80 murderers	F-2-4-6-8
	21	Guy, Platt, Zwerling, & Bullock, 1985	486 violent and nonviolent prisoners	2-4-6-8
	22	Ingram, Marchioni, Hill, Caraveo-Ramos, & McNeil, 1985	52 prisoners violent and nonviolent	F-3-4
	23	Cornell, Miller, & Benedick, 1988	36 homicidal, 18 larceny, 54 total	F-1-3-8
	24	Pavelka, 1986	Random sample of 86 of 261 violent and nonviolent prisoners	2-4 (62% violent)
	25	Kalichman, 1988a	20 matricides, 16 patricides, 19 murderers, total 55 homicidal	patricides 4-6-8 matricides murderers 4
	26	Kalichman ,1988b	118 murderers	F-2-4-6-8
	27	Wasiliw, Grossman, Haywood, & Cavanaugh, 1988	74 Violent and nonviolent prisoners	F-2-4
	28	Carmin, Wallbrown, Ownby, & Barnett, 1989	671 Violent and nonviolent prisoners	Five factors
	29	Biro, Vuckovic, & Djuric, 1992	112 murderers	2-4-6-8
	30	Shea & McKee, 1996	135 murderers and 82 other crimes total 217	F-2-4-6-8
	31	Graham, 2000	Violent and nonviolent prisoners	4-6-8
	32	McKee, Shea, Mogy, & Holder, 2001	30 filicides, 19 matricide, 24 murderers, 73 total murderers	Filicides, matricides, murderers F-2-4-6-8
	33	Megargee, Carbonell, Bohn, & Sliger, 2001	1,344 violent and nonviolent offenders, 60 serial killers	F-4-6-8
	34	Pennuto, 2004	1700 court cases, 435 murder cases, most for mental competence	F-2-4-6-8
	35	Megargee 2006; 2008	1,344 Violent and nonviolent prisoners, 60 serial killers	F-4-6-8
	36	Craig, 2008	1,114 murderers (30 studies reviewed)	F-2-4-6-8
	37	Romo, 2009	8 serial murderers	F-4-6-8-Pd1-Pd2-Pd-4-Pd5
	38	Spaans Barendregt Muller de Beurs Nijman & Rinne, 2009	247 violent offenders	F-2-4-6-8
	39	Pennuto, 2010	Review of murderers	F-2-4-6-8
	40	Grover, 2011	Review violent prisoners, sex offenders, nonviolent prisoners	F-L-2-4-6-8
	41	Zagar & Grove, 2010	324 murderers, 450 assaulters, 1,220 violent prone, 2,272 total	SPF2-4-6-8-AAS (ACK) Pd1-2-4-5
	42	Zagar, Kovach, Basile, Grove, Hughes, *et al*., 2013	236 patients, prisoners, students, workers, 4 homicidal, 29 violent prone	SP- F-2-4-6-8-AAS (ACK)-Pd1-2-4-5
	43	Culhane, Hildebrand, Walker, & Gray, 2014	61 serial murderers	F-Fb-4-6-8-Pd1-Pd2-Pd4-Pd5
	44	Brad, Coupland, & Oliver, 2014	95 murderers	F-2-4-6-8

3.2 Overdosing-Substance-Abusing, MMPI, and MMPI-2/A Studies: "7-Point Self-Destructive Violence Profile"

As seen in Table 1b within 22 studies of 66,839 overdosing-substance-abusing teens and adults, there were consistently

high SP, BSS and MMPI-2/A Mac Andrew's alcoholism Scale scores (MAC or MAC-R), addiction acknowledgment (AAS), addiction potential [for adults] (APS), alcohol-drug problem proneness [for teens] (PRO), and alcohol-drug problem acknowledgement (ACK) scores, lie (L), depression (2), psychopathic deviate (4), paranoia (6), schizophrenia (8) or "L-2-4-6-8" scores. There were high "MAC" scores, in 17 studies (*n*=64,957). There were increased "MAC-R" scores, within 10 papers (*n*=57,066). There were elevated "MAC-R-AAS-APS" scores among 6 researchers (*n*= 21,997). There were above normal "MAC-R-AAS-APS-2-4-6-8" scores in 2 experiments (*n*=1, 754). There was a high "MAC-R-ACK-PRO" score, in 1 paper (*n*=833). With the elevated "MAC-R-AAS-APS" or high "MAC-R-ACK-PRO" or increased "2-4-6-8" MMPI scales, these were consistent with distinguishing overdosing-substance-abusing from controls. So, the computerized MMPI-2/A clinical interpretative report is often used to determine at-risk for overdose, suicide ideation, and suicide intent. Given thousands of cases and over a dozen studies in different locations, *overdosing-substance-abusing, repeatedly, had the high SP, BSS, and MMPI-2/A"F-2-4-6-8"and "MAC-R-AAS-APS" scores (for adults) or "MAC-R-ACK-PRO" scores (for teens).*

Table 1b. Summary of MMPI MMPI-2/A & Standard Predictor for Overdosing-Substance-Abusing (2 of 4)

Risk		Study	Sample	High Test/Subtest
Overdosing	1	Wolfson & Erbaugh, 1984	teens and adults, 135 high schoolers, 90 psychiatric inpatients 81 psych outpatients, 100 substance abusers, 306 total	MAC cutoff scores
Substance	2	Gottesman & Prescott, 1989	Review of 74 studies of alcoholics	MAC sensitive specific
Abusing	3	Craig & Olson, 1990	50 suicide attempting, 50 non-suicidal total 113	F-2-4-6-8
66,839	4	Gartner, Graham, & Archer, 1992	Teen, 443, controls, psychiatric patients, substance abusers	4-MAC
22	5	Basham, 1992	327 teen inpatients	4-MAC
Studies	6	Weed, Butcher, McKenna, & Ben-Porath, 1992	2,600 controls, 423 psychiatric patients, 1,212 abusers, 4,235 total	AAS, APS
MMPI-2/A	7	Svanum & Ehrmann, 1992	90 alcoholics	F-2-4-6-8-MAC
F-2-4-6-8	8	Greene, Weed, Butcher, Arrendondo, & Davis, 1992	189 psychiatric patients, 126 substance abusers, 315 total	AAS, APS, MAC-R
MAC/MACR	9	Svanum & Ehrmann, 1993	156 abusers, anxious, depressed, college students, *ROC*	2-3-MAC-R AAS APS
AAS	10	Svanum, McGrew, & Ehrmann, 1994	308 college students, 33 substance abusers, AAS *ROC*=.81, APS *ROC*=.6, MACR *ROC*=.58	MAC-R, AAS, APS
APS	11	Weed, Butcher, & Williams, 1994	(teens) 1,620 controls, 252 psychiatric patients, 462 abusers, 2,334 total	ACK, PRO, MAC-R
ACK	12	Stein, Graham, Ben-Porath, & McNulty, 1999	833 substance abusing teens	MACRAASAPSACK PRO 2-4-6-8
PRO	13	Miccuci, 2002	79 teen psychiatric patients	ACK, MAC-R-PRO
Standard	14	Craig, 2005	32,000 substance abusers	MAC, MAC-R
Predictor	15	Stein & Graham, 2005	67 substance abusing delinquents	L- ACK-PRO
of	16	Miller, Shields, & Canfield, 2007	210 studies (AAS, *r*=.7)	MAC, MAC-R, APS
Violence	17	Clements & Heinz, 2010	338 university students	ROCsAASMACR APS
Potential	18	Polimeni, Moore, & Gruenert, 2010	921 substance dependent adults	MACRAASAPSF2468
BSS	19	Zagar & Grove, 2010	921 substance abusers, 2,722 total, adults and teens	SP-F-2-4-6-8 AAP(ACK)
	20	Zagar, Kovach, Basile, Grove, Hughes, Busch, Zablocki, Osnowitz, Neuhengen, Liu, & Zagar, 2013	236 patients, prisoners, students, & workers, 2 suicide-completers, 4 homicidal, 58 overdosing-substance-abusers	SP, Beck, F/L-2-4-6-8-AAS(ACK)
	21	Dragisic, Dickov, Dickov, & Mijatovic, 2015	100 suicide attempting heroin addicts, 100 non-suicidal addicts, 200 total	MAC-R, AAS, APS
	22	Dragisic, Jovanovic, Dickov, Bugarski, Ivetic, & Miskovic, 2017	150 overdose heroin addicts, 49 suicide intent, 101 non-suicidal addicts, 300 total	MAC-R, AAS, APS

3.3 Sex-Offending, MMPI and MMPI-2/A Studies: "7-Point Violence Profile"

As shown in Table 1c, there were 45 studies of 9,832 sex-offending teens and adults over 48 years (from 1971 to 2018) with consistently elevated: depression (2); psychopathic deviate (4); paranoia (6); and schizophrenia (8); or "2-4-6-8" MMPI scores. There were high "4-6-8" scores in 29 studies (*n*=8,382). There were elevated "2-4-8" subtests within 29 papers (*n*=8,176). There were increased "2-4-6-8" scores in 25 papers (*n*=7,765). There were high "2-4-6-8" scores

Table 1c. Summary of MMPI, MMPI-2/A and Standard Predictor for Sex-Offending (3 of 4)

Risk		Study	Sample	High Test/Subtest
Sex	1	Carroll & Fuller, 1971	50 sex offenders, 50 violent, 50 nonviolent, 150 total	2-4-8
Offending	2	McCreary, 1975	33 molesters	4-8
45	3	Rader, 1977	36 exposers, 37 rapists, 73 total	exposer 4-8 rapist 4-8
Studies	4	Armentrout & Haure, 1978	13 rapists, 21 molesters, 17 sex offenders, 51 total	F-2-6
n=9,832	5	Panton, 1978	78 sex offenders	4-6-8-9
F-2-4-6-8	6	Anderson, Kunce, & Riche, 1979	92 incest cases, molesters, rapists, sex offenders	F-2-4-8-9
MMPI2/A	7	Quinsey, Arnold, & Pruesse, 1980	250 murderers and violent offenders	2-4-8
Standard	8	Kalichman, 1981	90 sex offenders	2-4-6-8-9
Predictor	9	Lanyon & Lutz, 1984	90 adult sex offenders	F-2-4-6-8
of	10	Hall, Maiuro, Vitaliano, & Proctor, 1986	406 sex offenders	F-2-4-5-6-7-8
Violence	11	Erickson, Luxenberg, Walbek, & Seely, 1987	403 sex offenders, rapists compared and prisoners	2-4-6-8-9
Potential	12	Levin & Stava, 1987	review	molesters 2-6-8-10
BSS	13	Walters, 1987	28 molesters, 35 rapists, 75 offenders, 138 total	2-4-6-8-9
	14	Kalichman, Craig, Shealy, Taylor, Szymanowski & McKee, 1989	123 rapists	2-4-8
	15	Kalichman, Szmanowski, McKee, Taylor, & Craig, 1989	120 rapists	F-2-4-6-8-9
	16	Hall, 1989	101 molesters	2-4-8
	16	O'Connor, 1990	127 sex offenders	2-4-8
	17	Duthie & McIvor, 1990	90 molesters	2-4-6-8
	18	Langevin, Wright, & Handy, 1990	479 sex offenders and controls	F-2-4-5-6-8
	19	Miner, Marques, Day, & Nelson, 1990	48 volunteer 50 sex offenders, 98 total	F-L-4
	20	Kalichman, 1990	111 sex offenders	F-2-4-6-7-8-9
	21	Kalichman, Shealy, & Craig , 1990	120 rapists	2-4-6-8
	22	Kalichman, 1991	144 molesters	2-4-6-8
	23	Kalichman & Henderson, 1991	113 molesters	2-4-6-7-8
	24	Shealy, Kalichman, Henderson, Szymanowski, & McGee, 1991	90 molesters	F-2-4-6-7-8
	25	Hall, Graham, & Shepherd, 1991	261 sex offenders	2-4-6-7-8-9
	26	Kalichman, Dwyer, Henderson, & Hoffman, 1992	110 molesters	2-4-6-7-8
	27	Lanyon, 1993	(males) 130 sex offenders, 239 controls, 369 total	K-4
	28	Wilson, 1994	25 molesters, 25 rapists, 25 other crimes, 25 controls, 100 total	F-4-6-7-8-9
	29	Heersink & Strassburg, 1995	122 molesters	2-4-6-8
	30	Losada-Paisley, 1998	21 sex offenders, 30 non-offenders, 60 total teens	4-8
	31	Watkins, 2000	25 molesters, 25 sex offenders, 50 total	Molesters 2-4 sex offenders 4
	32	Briley, 2001	99 exposers, molesters, rapists	
	33	Geer, Becker, Gray, & Krauss, 2001	179 sex offenders	F-L-4
	34	Pietrulewicz, 2006	30 heterosexual pedophiles, 30 controls, 60 total	2-4-6-8
	35	Looney, 2007	24 pedophiles	F-2-4-6-8- Pd2-Pd5
	36	Nademin, 2009	121 internet and sex offending sex offending	L-F-4-8
	37	Tomak,Weschler,Ghahramanlou-Holloway, Virden, Elicia, & Nademin, 2009	48 internet and 104 sex offenders, 152 total	4-8
	38	Coxe & Holmes, 2009	285 sex offenders	4-6-8
	39	Tomak, Wechsler, Ghahramanlou-Holloway, Veden, & Nademin, 2009	121 sex offenders	L-F-4-8
	40	Busch, Zagar, Grove, Hughes, Arbit, Bussell, & Bartikowski, 2009	223 molesters, 223 nonviolent controls, 223 rapists, 669 total teens	L-2-4-6-8, High Standard Predictor
	41	Davis & Archer, 2010	Review	4 moderate to large effect size
	42	Zagar & Grove, 2010	234 murderers, 223 molesters 223 rapists, , 450 assaulters, 1220 violent prone, 2722 total	SP- L-2-4-6-8-AAS (ACK)
	43	Grover, 2011	Review	L-F-4-8 MMPI-2/A AP
	44	Zagar, Kovach, Basile, Grove, Hughes, *et al*., 2013	236 patients, prisoners, students, and workers, 13 sex offending, 29 violent	SP-L-F--4-6-8-AAS-ACK-Pd1245
	45	Oliver, Coupland, & Kurtenbach, 2018	349 sex offenders	F-4-6-8-9

within 24 papers (*n*=7,595). There were above normal "F-4-6-8" scores in 12 experiments (*n*=2,555). There were significantly raised "4-6-9" scores in 8 papers (*n*=1,530). There were significantly increased "2-4-6-8-9" scores in 5 papers (*n*=1,003). There were increased "L-2-4-6-8" scores within 2 papers (*n*=3,391). There were above normal "L-2-4-6-8-Pd-2-Pd-5" scores in 1 paper (*n*=236) with higher authority problems, and self-alienation "Pd-2-Pd-5" MMPI scores. Given thousands of cases in dozens of studies of sex-offending in different locales at various times, *sex offenders repeatedly had increased SP, BSS and MMPI-2/A"L-2-4-6-8"scores.*

3.4 Adult Suicide, MMPI, and MMPI-2/A Studies: "7-Point Self-Destructive Violence Profile"

As seen in Table 1d in 31 studies with 30,634 suicide-completers, attempters, and ideational, over 57 years (from 1958-2014), there was a constant MMPI/2/A profile of the elevated: depression (2); psychopathic deviate (4); paranoia (6); schizophrenia (8); or increased "2-4-6-8" scores with high SP and BSS scores. There were high "4-6-8" scores in 15 studies (*n*=28,047). There were increased "2-4-6" subtest scores within 13 papers (*n*=27,680). There were elevated "2-4-6-8" scores among 13 researchers (*n*=27,680). There were above normal "2-6-8" scores in 13 papers (*n*=27,680). There were increased "2-7-8" scores within 4 papers (*n*=799). There were significantly increased "1-2-6" scores within 1 paper (*n*=283). There were above normal "1-2-7" scores in 1 experiment (*n*=283). There was a significantly raised "1-2-8" score in 1 study (*n*=283). There were above normal "1-2-7-8" scores in 1 research event (*n*=283). Given tens of thousands of cases in dozens of studies from many places over decades at various times, *suicide-completers, attempters and ideational had increased "2-4-6-8" MMPI/MMPI2/A, SP, and BSS scores.*

4. Reviews of Dangerous and Violent Behavior: Probation and Parole Decision Making Tests: Teens and Adults

Next, there were 70 studies of 191,611 offenders over 95 years measuring with "return to court", probation parole, decision-making tests over a 1-10 year follow-up using 1-71 questions. Test sensitivity-specificity was from .59-.99 [receiver operating characteristic (*ROC*) or area under the curve (*AUC*)]. See Tables 2a, 2b, 2c, and 2d. These tests are divided into teen and adult populations. In Table 2a, over 71 years, there were 13 studies of 31,581 delinquents with a unit item, regression, correlation, phi coefficient, receiver operating characteristic (*ROC*), or area under the curve (*AUC*) sensitivity or specificity in analyzing data. For the adult criminals, the 57 studies of 160,130 subjects over 95 years are presented in Tables 2b and 2c, with 1 to 71 item tests and followed for 1-10 years with unit item statistics, coefficient alpha, Pearson product moment correlation, multiple regression, base expectancy, point bi-serial correlation, discriminant analysis, *ROC*, *AUC*, sensitivity, and specificity. So, looking across the homicidal, overdosing-substance-abusing, sex-offending, and suicide-completers in 142 studies of 128,135 subjects over 70 years, and 70 studies of 191,611 delinquents and criminals for a combined 212 studies of 320,051 individuals, there was a consistent, replicated "7-point violence profile." See Table 2e for a summary.

The null hypotheses of the cross-validation of the "7-point violence profile" are: (1) there are no differences between adult homicidal and controls; (2) there are no differences between adult overdosing-substance-abusing and controls; (3) there are no differences between adult sex-offending and controls; (4) there are no differences between adult suicide-completers and controls; (5) there are no differences between teen homicidal and controls; (6) there are no differences between teen overdosing-substance-abusing and controls; (7) there are no differences between teen sex-offending and controls; and (8) there are no differences between teen suicide-completers and controls. The alternate hypotheses of the cross-validation of the "7-point violence profile" are: (1) adult and teen homicidal, overdosing-substance-abusing, sex-offending, and suicide-completers will be similar; and (2) homicidal, overdosing-substance-abusing, sex-offending and suicide-completers will have a similar "7-point violence profile."

5. Homicidal, Overdosing-Substance-Abusing, Sex-Offending, Suicide-Completers & Controls Method

5.1 Participants and Population: Random Selection

The random sample of referrals and five adult and five teen study groups came from a Midwestern city with approximately 2,000,000 workers and students, during 26 years (1992 to 2018). See Figure 3. In any given day of the year, from 1992 to 2019, within Cook County, Chicago, Illinois, there were 50,000 Juvenile, and 90,000 Adult Court prisoners. This study's sample was independent of those reported, in prior research (Zagar, Arbit, Hughes, Bussell, and Busch, 1989; Busch, Zagar, Arbit, Hughes, and Bussell, 1990; Zagar, Arbit, Busch, Hughes, and Sylvies, 1991; Zagar, Zagar, Busch, Grove, Hughes, *et al*., 2009; Zagar and Grove, 2010; Zagar, *et al*., 2013).

Table 1d. Summary of MMPI, MMPI-2/A & Standard Predictor for Suicidal-Completers (4 of 4)

Risk		Study	Sample	High Test/Subtest
Suicide	1	Simon & Gilberstadt, 1958	26 veteran suicide completers, psychiatric patients	2
31	2	Faberow & DeVries, 1967	20 suicidal, Army soldiers	2
Studies	3	Ravensborg & Foss, 1969	27 suicidal, 173 suicide completers, 109 psychiatric patients, 299 total	2
30,634	4	Lester, 1970	52 adult / teen male suicide completers	6
2-4-6-8	5	Poeldinger, Gehring, & Blaser, 1973	9 suicide attempters, 28 psychiatric patients, 37 total	2-3
100	6	Leonard, 1974	70 suicide attempters	2-0
completers	7	Clopton & Jones, 1975	22 suicide completers, 22 non-suicidal	2-4-7-8
571	8	Tarter, Templer, & Perley, 1975	50 suicide attempters, 50 psychiatric controls, 100 total	2
attempters	9	Pallis & Birtchnell, 1977	136 suicide attempters, 147 ideational 233 nonsuicidal, 516 total	2-4
566	10	Leonard, 1977	36 suicide completers, 36 ideational, 36 psychiatric patients, total 108	F-2-4-6-8
Ideational	11	Clopton & Baucom, 1979	20 veteran suicide completers, 20 non-suicidal, 40 total	MMPI profile
Standard	12	Clopton, Pallis, & Birtchnell, 1979	75 suicidal men, 7 suicidal women, 201 non-suicidal, 283 total	F-1-2-4-6-7-8
Predictor	13	Johnson, Lall, Bongar, & Norland, 1979	Review	2-4-6-8
of	14	Sendbuehler, Kincel, Nemeth, & Oertel, 1979	184 suicide survivors	2-4-5-6-8
Violence	15	Jones, Heidleman, & Fowler, 1981	141 prisoners, violent and nonviolent	F-4-6-7-8-9
Potential	16	Waters, Sandbuchler, Kineel, Boodoosingh, & Marchenko, 1982	575 total psychiatric patients and suicidal	2-4-5
BSS	17	Clopton, Post, & Larde, 1983	161 suicide attempters, 161 non-suicidal, 332 total	2-4-7-8
	18	Watson, Klett, Walters, & Laughlin, 1983	25 suicide completers, 71 ideational, 96 total	2-4-6-8
	19	Watson, Klett, Walters, & Vassar, 1984	84 suicidal veterans, 38 psychiatric patients, 122 total	2-4-6-8
	20	Spirito, Faust, Myers, & Bechtel, 1988	20 teen suicide attempter, 20 teen psychiatric patients, 40 total	F-2-4-8
	21	Sepaher, Bongar, & Greene, 1999	23,646 psychiatric patients	2-4-6-8
	22	Archer & Slesinger, 1999	348 teen suicidal and non-suicidal	4-6-8-9
	23	Johnson, Bongar, Lall, & Borland, 1999	Review	2-4-6-8
	24	Glassmire, Stolberg, Greene, & Bongar, 2001	116 suicidal and psychiatric patients	2
	25	Daigle, 2004	47 suicide completers, 43 suicide attempters, 123 controls, 213 total	2-4-6-8
	26	Friedman, Archer, & Handel, 2005	Review	2
	27	Zagar & Grove, 2010	289 suicidal, 2,722 total adults and teens	SP 2-4-6-8-AAS (ACK)
	28	Romeo, Balducci, Quintarelli, Perbellini, *et al*., 2013	48 suicide ideation bullied at work	1-2-3-6
	29	Pompili, Rihmer, Akiskal, Innamorati, Iliceto, Akiskal, Lester, Narciso, Ferracuti, Tatarelli, De Pisa, & Girardi, 2008	150 psychiatric patients	2-3-7-8-10
	30	Zagar, Kovach, Basile, Grove, Hughes, *et al*., 2013	236 patients, prisoners, students, workers, 2 suicide completers, 58 substance abusing	SP Beck 2-4-6-8-AAS (ACK) overdose & suicide
	31	Pompili, Innamorati, Di Vittorio, Baratta, Massotti, Badaracco, Wond, Lester, Yip, Girardi, & Amore, 2014	245 suicide completers, 41 psychiatric outpatients no ideation, 286 total	6, unemployment
	142		128,435	

Table 2a. 70 Teen and Adult Probation-Parole Decision-Making Tests including the SP: Teens (1 of 5)

Author	Time	Place	Tracked	*n*	Controls	Gender	Items	Analyses
Monachesi	1932	Minneapolis	3	896	no	M,F	43	unit*
Jenkins, *et al.*	1942	New York	2	226	no	M	45	unit*
Jenkins, *et al.*	1942	New York	2	300	no	M	95	unit*
Weeks	1943	Washington	2	840	no	M	14	unit*
Glueck & Glueck	1950	Boston	10	500	yes	M	5	regression
Simon	1956	London	5	1,121	no	M	4	unit* *phi*=.16-.17 *r*=.17
U.S. Navy	1959	San Diego	2	20,000	no	M	20	unit*
McClintock	1961	London	2	1,449	no	M	6	unit*
Mannheim *et al*	1955	London	6	385	no	M	5	regression *phi*=.46-.5
Wenk, *et al.*	1972	Sacramento	2	4,146	no	M	6	unit*
Kandel, *et al.*	1989	Denmark	10	265	no	M,F	1	unit* *ROC*=.67
Zagar & Grove	2010	Chicago	10	1,122	Yes	M,F	14	*AUC*=.91
Zagar, *et al.*	2013	Chicago	10	236	Yes	M,F	14	Sensitivity specificity.97
Summary:		2 Continents	2-10	31,581	yes	M,F	4-116	

Note. - Only Zagar and Grove 2010 and Zagar *et al*., 2013 used random sampling. All participants were adolescents. *Unit = refers to the actuarial approach to parole decision making that involves a univariate comparison to reoffending outcome statistic developed by Burgess (1928) and improved by Nuffield (1982) and Quinsey, *et al.* (1998). M = male, F = female. *ROC*= receiver operating characteristic (which is roughly equivalent to the *AUC* or area under the curve), *a* = alpha; *ptb* = point bi-serial; base exp. =base expectancy; regress. =regression; discrim. = discriminant analysis; *b*=beta coefficient; sensitivity = identifying the re-offender precisely; specificity is not over identifying someone as an offender.

Table 2b. 70 Teen and Adult Probation-Parole Decision-Making Tests including the SP: Adults (2 of 5)

Author	Time	Place	Tracked (yr.)	*n*	Gender	Items	Analysis
Warner	1923	Boston	2	680	M	15	unit*
Borden	1928	Trenton	1	263	M	28	unit*
Burgess	1928	Chicago	3	3,000	M	21	unit*
Burgess	1929a,b	Chicago	2	263	M	26	unit*
Vold	1930	Minneapolis	6	290	M	14	unit* *r* offense
Vold	1931	Chicago	6	1,192	M	14	unit* .1–.3
Tibbits	1931	Minneapolis	7	3,000	M,F	24	unit*
Monachesi	1932	Minneapolis	3	619	M	34	unit*
Van Vechten	1933	Chicago	2	*564*	M	21	unit*
Vold	1935	Boston	6	1,158	M	10	unit*
Redden	1939	Chicago	2	10,210	M	21	unit*
U.S. Attorney General	1939	Washington, DC	2	53,033	M	10	unit*
Gillin	1943	Wisconsin	2	1,000	M	15	unit*
Hakeem	1948	Chicago	10	1,861	M	23	regression *r* = .31
Hakeem	1948	Chicago	3	9,729	M	23	regression
Ohlin & Duncan	1949	Chicago	*5*	*5,624*	M	27	unit*
Ohlin	1951	Chicago	*5*	4,941	M	12	unit*
Glaser	1962	Chicago	3	2,637	M	7	unit*
Metzner & Weil	1963	Boston	*2.5*	311	M	12	base expect.
Metzner & Weil	1963	Boston	*2.5*	311	M	16	unit*
Babst & Mannering	1965	Wisconsin	*5*	7,614	M	3	base expect.
Vikert & Zahnd	1965	Ontario	2	200	M	3	base expect.
Carney	1967	Boston	4	363	M	2	unit*
Ward	1968	Sydney	7	2,065	M	14	unit* *r* = .44 regression discr. base except.
Walker & McCabe	1973	London	6	100	F	3	unit* regression *b* = .1

Note. - Only Zagar and Grove 2010 and Zagar *et al*., 2013 used random sampling. All participants were adolescents. *Unit = refers to the actuarial approach to parole decision making that involves a univariate comparison to reoffending outcome statistic developed by Burgess (1928) and improved by Nuffield (1982) and Quinsey, *et al.* (1998). M = male, F = female. *ROC*= receiver operating characteristic (which is roughly equivalent to the *AUC* or area under the curve), *a* = alpha; *ptb* = point bi-serial; base exp. =base expectancy; regress. =regression; discrim. = discriminant analysis; *b*=beta coefficient; sensitivity = identifying the re-offender precisely; specificity is not over identifying someone as an offender.

Table 2c. 70 Teen and Adult Probation-Parole Decision-Making Tests including the SP: Adults (3 of 5)

Author	Time	Place	Tracked	*n*	Gender	Items	Analyses
Walker & McCabe	1973	London	6	351	M	3	unit*
Walker & McCabe	1973	Ontario	6	423	M	3	unit*
Carlson	1973	Ontario	5	1,070	M	7	unit*
Challinger	1974	Melbourne	2	593	M	25	unit*
Hoffman & Beck	1974	Washington, DC	2	2,483	M	9	*ptb* = .32, *ROC* = .69
Ferguson, *et al.*	1975	Wellington	2	1,000	M	25	regression *phi*=. 1
Quinsey, *et al.*	1975	Toronto	4	60	M	5	unit*
Hoffman & Beck	1976	Washington, DC	2	1,011	M	9	*ptb* = .32, *ROC* = .69
Nuttall	1977	London	3	1,138	M	16	unit*
Gottfredson, *et al.*	1978	Washington, DC	2	2,483	M	9	unit* *ptb* = .28
Hoffman & Beck	1980	Washington, DC	3	1,000	M	8	unit*
Soothill, *et al.*	1980	London	5	166	M	3	unit*
Greenwood	1982	California Michigan Texas	2	781	M	7	unit*
Holland, *et al.*	1982	California	2.5	198	M	1	unit*
Nuffield	1982	Ottawa	3	2,500	M	13	unit* *ROC* = .69 (violent) regression discr.
Nuffield	1982	Ottawa	3	2,500	M	15	unit* *ROC*= .69 regression
Hoffman	1983	Washington, DC	3	5,237	M	6	unit* *ROC*= .69
Steadman	1983	Massachusetts Pennsylvania	5	393	M	37	unit*

Note. - Only Zagar and Grove 2010 and Zagar *et al*., 2013 used random sampling. All participants were adolescents. *Unit = refers to the actuarial approach to parole decision making that involves a univariate comparison to reoffending outcome statistic developed by Burgess (1928) and improved by Nuffield (1982) and Quinsey, *et al.* (1998). M = male, F = female. *ROC*= receiver operating characteristic (which is roughly equivalent to the *AUC* or area under the curve), *a* = alpha; *ptb* = point bi-serial; base exp. =base expectancy; regress. =regression; discrim. = discriminant analysis; *b*=beta coefficient; sensitivity = identifying the re-offender precisely; specificity is not over identifying someone as an offender.

Table 2d. 70 Teen and Adult Probation-Parole Decision-Making Tests including the SP: Adult (4 of 5)

Author	Time	Place	Tracked (yr.)	*n*	Gender	Items	Analyses
Bonta & Motiuk	1985	Ottawa	2	164	M	58	Unit* a = .72, *r* = .87-.99
Goldkamp & Gottfredson	1985	Sacramento	8	937	M	7	Unit*
Andrews, *et al.*	1986	Ottawa	3	192	M	58	Unit*
Goldkamp, *et al.*	1988	Arizona Massachusetts Florida		9,090	M	9	Regression
Gottfredson & Gottfredson	1988	Sacramento	8	1,810	M	7	Base exp. *ptb* = .3
Klassen & O'Connor	1988	Kansas City	1	304	M	64	Umt*
Jones	1991	Kansas	3	1,140	M	18	Unit"
Jones & Goldkamp	1991	Miami	5	5,470	M	7	Unit*
Harris, *et al.*	1993	San Antonio	1.5	396	M	71	Unit*
Bonta, *et al.*	1996	Ottawa	3	3,267	M	8	Unit*
Quinsey, *et al.*	1998	Ottawa	10	600	M	13	Unit* *ROC*= .76 discr.
Quinsey, *et al.*	1998	Ottawa	10	200	M	15	Unit* *ROC* = .10 discr.
Kassenbaum, *et al.*	2001	Honolulu	2	314	M	12	Unit*
Summary:	78 yr.		1-10	154,956	M.F	1-71	Unit* *a, r, ptb*, discr. Base exp., *ROC*

Note. - Only Zagar and Grove 2010 and Zagar *et al.*, 2013 used random sampling. All participants were adolescents. *Unit = refers to the actuarial approach to parole decision making that involves a univariate comparison to reoffending outcome statistic developed by Burgess (1928) and improved by Nuffield (1982) and Quinsey, *et al.* (1998). M = male, F = female. *ROC*= receiver operating characteristic (which is roughly equivalent to the *AUC* or area under the curve), *a* = alpha; *ptb* = point bi-serial; base exp. =base expectancy; regress. =regression; discrim. = discriminant analysis; *b*=beta coefficient; sensitivity = identifying the re-offender precisely; specificity is not over identifying someone as an offender.

6. 7-Point Violence Profile in Homicidal, Overdosing-Substance-Abusing, Sex-Offending &Suicide-Completers

Table 2d. Summary of 320,051 Homicidal, Overdosing, Sex-Offending, Suicidal, & Offenders in 212 Studies Confirming a "7-Point Violence Profile" (5 of 5)

At-Risk	Tests Used	# of Studies	# of Persons	Years		"7-Point Violence Profile"
Homicidal-Violent-Prone	MMPI, MMPI-2, MMPI-A	44	21,130	1949-2014	65	"F/L-2(D)-4(Pd)-6(Pa)-8(Sc)"
Overdosing-Substance-Abusing	MMPI, MMPI-2, MMPI-A	21	66,839	1984-2017	43	"F/L-2(D)-4(Pd)-6 (Pa)-8(Sc)-AAS (PRO)"
Sex-Offending	MMPI, MMPI-2, MMPI-A	45	9,832	1971-2018	47	"F/L-2(D)-4(Pd)-6(Pa)-8(Sc)"
Suicide-Completers	MMPI, MMPI-2, MMPI-A	31	30,634	1958-2014	64	"F/L-2(D)-4(Pd)-6(Pa)-8(Sc)"
Delinquents (Teens)	Standard Predictor (SP) of Violence Potential & other tests	13	31,486	1932-2013	81	High Standard Predictor of Violence Potential or other test scores
Criminals (Adults)	Standard Predictor of (SP) Violence Potential & other tests	57	160,130	1923-2013	90	High Standard Predictor of Violence Potential or other test scores
Total	MMPI, MMPI-2, MMPIA, SP, others	212	320,051	1923-2018	95	"F/L-2(D)-4(Pd)-6(Pa)-8(Sc)-AAS (PRO) & SP"

A random subsample of 4,987 was obtained by using a random number table from these convenience samples of 50,000 people referred for assessment by courts, industry, hospitals, schools, and universities, and 5,000 delinquent and criminal court persons, This random subsample consisted of all cases with full test data since they were referred by the court, hospitals, industry or university for testing, and had complete examinations. Adults and youth without examinations or without full test data were excluded from the random subsample and comprised the larger population.

Then, these 4,987 adults and teens were randomly sampled with a random number table. Thus, the adult and teen study groups were a selection of 136 persons, which made up the five groups of homicidal, overdosing-substance-abusing, sex-offending, suicide-completer, and control adults and teens, making up ten study groups. This random selection had a goal of at least a minimum of ten and maximum of 25, within each of the ten study groups. Summarizing, there were two sets of study groups, five adult and five teen (homicidal, overdosing-substance-abusing, sex-offending, suicide-completers, and controls) that made up the ten study groups in this random subsample.

6.1.1 Demographics of Random Subsample of Combined Adult and Teen Study Groups

The combined adult and teen study group demographics were N = 136 persons with 98 males (72%) and 38 females (28%). The *M age* = 28.68 with the *SD* = 8.33 yr. The *M education* = 12.71 with the *SD* = 2.15 yr., or some college. There were 36 Euro-Americans (26%), 71 African-Americans (52%), 19 Hispanic-Americans (14%), and 10 others (Asian, Filipino, or Native American Indian) [8%]. The combined adult and teen family composition was 8 orphans (6%), 71 one parent families (52%), 14 step-parents (10%), and 43 mother + father families (32%). Of the 136 participants, approximately 20 or 15% traveled in for the examinations from adjoining states of Indiana, Michigan, Minnesota, Wisconsin, and New Jersey, and were referred by airlines, courts, energy production industries, insurance firms, trucking companies, and lawyers.

6.1.2 Demographics of a Random Subsample of Adult Study Groups

The adult study groups demographics include n = 79 individuals, with 56 men (71%) and 23 women (29%). The *M age* = 38.29 with the *SD* = 12.40 yr. The *M education* = 15.08 with the *SD* = 2.68 yr., or some college. There were 21 Euro-Americans (27%), 42 African-Americans (53%), 11 Hispanic-Americans (14%) and 5 others (Asian, Filipino or Native American Indian) [6%]. The family composition was 3 orphans (4%), 40 single parents (51%), 8 step-parents (10%) and 28 mother + father families (38%).

This adult subsample study groups included some people most at-risk for violence, including those with issues related to alcoholism, assault, autism, behavior and emotional school disturbance, career delinquency or criminality, cognitive delay, credibility issues, such as facetiousness and malingering, divorce or separation, domestic violence, hyperactivity, lack of work skills, learning disability, physical, sex-offending or homicidal tendencies, marital challenges, mental illness, pedophilia, post-chemotherapy, sexual or verbal abuse, school dropout, somatoform disorders, substance addiction, suicide attempt or ideation, underachievement, and vocational guidance. The referrals were for competence to stand trial, developmental disability, hearing, motor, speech, or visual challenges, employment hiring, promotion or termination, high school, college, graduate school or seminary entrance, local, national or international adoption, parole or probation hearings, physical or personal injury, pre-sentencing, pre-trial, travel with pet on airlines, and workers compensation issues.

Selection of referrals for the adult study groups is similar to the selection of the standardization samples for the MMPI-2/A and other personality and ability tests, which are basically convenience samples from clinical and school professionals recruited by the testing corporations, who along with volunteer test subjects are chosen to meet certain age, gender, race, socio-economic status (SES) and specialized population characteristics, and are given a small stipend to take the test. This is the same as court, hospital, industry or insurance referrals, who pay for the examination and report. SES was measured by family annual income, in 2010 dollars, with a national median of $71,900 (U.S. Census Bureau, 2018). Low SES consisted of incomes from $0 to $30,000, and middle SES from $30,001 to $100,000.

6.2 Adult Study Groups

There were five study groups of adults: (1) homicidal; (2) overdosing-substance-abusing; (3) sex-offending; (4) suicide-completers; and (5) controls (n=79). See Table 3a.

6.3 Adult Homicidal Study Group

Among the twelve homicidal adults there were nine men and three women. The *M age* = 39.23 and the *SD* = 9.36 yr., or middle age. They had *M education* = 15.38, and the *SD* = 2.06 yr., or some college. There were three Euro-Americans (25%), six African-Americans (50%), two Hispanic-Americans (17%) and one other (Asian, Filipino, or Native American Indian) [8%]. Occupations included professional coach, electric station controller, firefighter, handyman, mechanic, physician, police officer, port shipping supervisor, programmer, rabbi, sales person, and teacher with Army, Marines and Navy veterans. “Homicide” is defined as adjudication and conviction before a judge in court for killing of another individual(s), and by Illinois state law.

6.4 Adult Overdosing-Substance-Abusing Study Group

Among the thirteen overdosing-substance-abusing adults, there were nine men and four women. The *M age* = 38.29, *SD* = 12.40 yr., or middle age. The *M education* = 15.08 and the SD = 2.68 yr., or some college. There were three Euro-Americans (23%), seven African-Americans (54%), two Hispanic-Americans (15%) and one other (Asian, Filipino, or Native American Indian) [8%]. Occupations included college coach, finance manager, football professional, lawyer, physician, pilot, policeman, professor, rabbi, refinery supervisor, scout leader, train engineer, and truck driver with Army, Coast Guard and Navy veterans.

Overdosing-substance-abusing is weekly alcohol abuse, substance-abuse, and alcohol and substance-abuse such as amphetamines, aromatics (paint or glue) barbiturates, cocaine, fetal polysubstance-abuse history, hallucinogens, heroin, glue sniffing, marijuana, nicotine, opiates, PCP and other substances. Many were hospitalized, either as an inpatient or outpatient, following an episode of loss of consciousness. Some died. Suicide conformed with the definition in the Diagnostic Statistical Manual-Fifth Edition [DSM-V] (American Psychiatric Association, 2013) and the International Classification of Diseases [ICD-10] (World Health Organization, 2013): and the state of Illinois statutes. Suicide completers died. Suicide attempters had a documented police report of a suicide attempt, along with hospital medical records. Suicide ideation was recorded court, medical, school or work record to suicide intentions and ideation discussed and reported.

6.5 Adult Sex-Offending Study Group

Among the fifteen persons, there were ten men and five women. They had *M age* = 36.07 and the *SD* = 11.03 yr., or middle age. The *M education* = 15.53 and the *SD* = 3.17 yr., or some college. There were four Euro-Americans (27%), eight African-Americans (53%), two Hispanic-Americans (14%) and one other (Asian, Filipino, or Native American Indian) [6%]. Occupations included Olympic coach, construction worker, firefighter, mechanic, minister, nurse, physician, policeman, priest, professor, professional baseball player, restaurant waiting, sales, speech therapist, and teacher, including Air Force, Army and Navy veterans.

Sex-offending was molestation, pedophilia or rape, and by operational definition was identified and convicted individuals, who had raped a female or male, with evidence presented in court, and met the criterion for rape or

aggravated criminal sexual assault as defined in Illinois laws. By definition, a "sexual molester" was an identified, detected, and convicted individual who molested a minor, supported by evidence presented in court. "Molestation" "pedophilia" and "rape" were consistent with the definition of pedophilia in the Diagnostic Statistical Manual-Fifth Edition (DSM-V; American Psychiatric Association, 2013) and the International Classification of Diseases Tenth Edition (World Health Organization, 2013).

6.6 Adult Suicide-Completer Study Group

Among fifteen individuals, there were ten men and five women. The *M a*ge = 34.20 and the *SD* = 11.09 yr. or middle age; The *M educ*ation = 14.20 and the *SD* = 2.65 yr., or some college. There were four Euro-Americans (27%), eight African-Americans (53%), two Hispanic-Americans (14%) and one other (Asian, Filipino, or Native American Indian) [6%]. Occupations included bookkeeper, Buddhist monk, bus driver, delivery person, doctor, emergency medical technician, judge, lawyer, minister, nuclear plant controller, nurse, pilot, policeman, priest, and stewardess with Army, Marine and Navy veterans, and one special-forces military. Suicide completion was death by one's own hand, consistent Diagnostic Statistical Manual-Fifth Edition (DSM-V); American Psychiatric Association, 2013, and the International Classification of Diseases Tenth Edition (World Health Organization, 2013), and Illinois laws.

6.7 Adult Control Study Group

Among 24 persons, there were 18 men and six women. The *M age* = 41.75, *SD* = 14.67 yr. The *M educ*ation = 16.00 and the *SD* = 1.89 yr., or a college degree. There were seven Euro-Americans (29%), thirteen African-Americans (54%), three Hispanic-Americans (12%) and one other (Asian, Filipino, or Native American Indian) [5%]. Occupations included bookkeeper, bus driver, college track coach, emergency medical technician, engineer, firefighter, finance manager, golf professional, minister, nurse, Olympic athlete, occupational therapist, payroll personnel, physical therapist, pilot, police woman, priest, programmer, psychiatrist, rabbi, scout leader, stewardess, train engineer, and university volleyball champion with Air Force, Army, Coast Guard, Marine, and Navy veterans. The control group comprised inpatient and out-patients referred to hospital, industry, and university clinics from 1992 to 2018, by health care workers. Part or full time and summer work included babysitting, car washing, cashier, coding, cooking, delivery, dishwashing, farming, housekeeping, janitor, landscaping, nanny, painting, restaurant work, sales, snow removal and volunteering at nonprofit and religious organizations.

6.8 Teen and Teen Homicidal Study Groups

There were five teen study groups: (1) homicidal; (2) overdosing-substance-abusing; (3) sex-offending; (4) suicide-completers; and (5) controls (*n*=57). The teen study group demographics were: N=57 youth with 42 boys (74%) and 15 girls (26%); M age = 15.37, SD = 1.41 yr.; M education = 9.44, S.D. = 1.41 yr., or some high school. There were 15 Euro-Americans (26%), 29 African-Americans (51%), eight Hispanic-Americans (14%), and five other (Asian, Filipino, or Native American Indian) [9%]. The family composition was five orphans (9%), 31 single parents (54%), six step-parents (11%) and 15 mother + father families (26%). Part or full time, and summer work included babysitting, car washing, cashier, coding, cooking, delivery, dishwashing, farming, housekeeping, janitor, landscaping, nanny, painting, restaurant work, sales, snow removal and volunteering at nonprofit and religious organizations. See Table 3b.

Among the eleven homicidal teens, there were ten boys and one girl. The *M age* = 16.19 with the *SD* = 0.87 yr. The *M education* = 9.27 with the SD = 1.35 yr., or some high school. There were three Euro-Americans (27%), five African-Americans (45%), two Hispanic-Americans (18%) and one other (Asian, Filipino, or Native American Indian) [10%]. "Homicide" is defined as adjudication and conviction before a judge in court, and by Illinois state law.

6.9 Teen Overdosing-Substance-Abusing Study Group

Among seven overdosing teens, there were five boys and two girls. The *M age* = 13.71 with the *SD* = 1.60 yr. The *M education* = 8.28 with the *SD*=1.60 yrs., or beginning high school. There were two Euro-Americans (29%), three African-Americans (43%), one Hispanic-American (14%) and one other (Asian, Filipino, or Native American Indian) [14%]. Overdosing-substance-abusing is weekly alcohol abuse, substance-abuse, and alcohol and substance-abuse with the definition in the Diagnostic Statistical Manual-Fifth Edition [DSM-V] (American Psychiatric Association, 2013) and the International Classification of Diseases [ICD-10] (World Health Organization, 2013), and Illinois state law.

6.10 Teen Sex-Offending Study Group

Among ten sex-offending teens, there were nine boys and one girl. The *M age* = 15.40 with the SD = 0.84 yr. The *M education* = 9.20 with the SD = 0.63 yr., or some high school. There were three Euro-Americans (30%), five African-Americans (50%), two Hispanic-Americans (20%) and one other (Asian, Filipino, or Native American Indian) [10%]. The same operational definition of sex-offending adults applies for sex-offending teens except the place of adjudication and conviction may be in juvenile or family court.

Sex-offending was molestation, pedophilia or rape and by operational definition were identified and convicted individuals who had raped a female or male, with evidence presented in court, and met the criterion for rape or aggravated criminal sexual assault as defined in Illinois laws. By definition, a "sexual molester" was an identified, detected, and convicted individual who molested a minor, supported by evidence presented in court. "Molestation" "pedophilia" and "rape" were consistent with the definition of pedophilia in the Diagnostic Statistical Manual-Fifth Edition (DSM-V), the American Psychiatric Association, 2013 and the International Classification of Diseases Tenth Edition (World Health Organization, 2013).

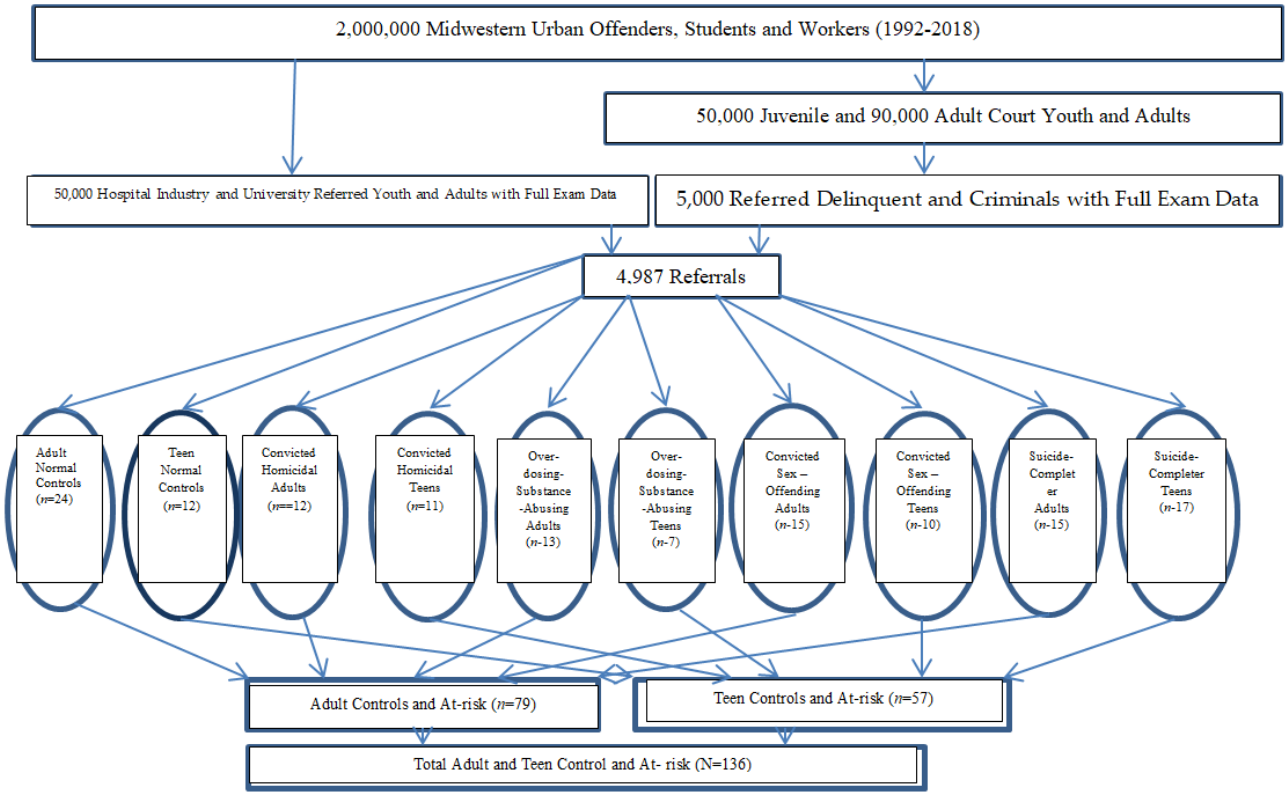

Figure 3. Population & Sample Selection: Homicidal, Overdosing, Sex-Offending, Suicidal, Adults & Teens (N=136)

6.11 Teen Suicide-Completer Study Group

Among 17 suicide-completing teens, there were ten boys and seven girls. The *M age* = 15.12 with the *SD* = 1.59 yr. The *M education* = 9.27 with the *SD* = 1.35 yr., or some high school. There were four Euro-Americans (24%), ten African-Americans (59%), two Hispanic-Americans (12%), and one other (Asian, Filipino, or Native American Indian) [5%]. Suicide completion is death by one's own hand consistent Diagnostic Statistical Manual-Fifth Edition (DSM-V; American Psychiatric Association, 2013), the International Classification of Diseases Tenth Edition (World Health Organization, 2013), and Illinois law.

6.12 Teen Control Study Group

Among 12 control teens, there were six boys and six girls. The M age = 15.91, SD=1.56 yr., The M education = 10.08, SD=1.68 yrs., or some high school. There were three Euro-Americans (25%), six African-Americans (50%), two Hispanic-Americans (17%) and one other (Asian, Filipino, or Native American Indian) [8%]. Controls were randomly selected from 50,000 clinic-referred youth and adults. Referrals were for developmental, hearing, learning, motor, speech, visual, or other issues to assess level of function for interventions, schooling, or treatment.

6.13 Combined, Adult and Teen Study Groups' Characteristics Compared with U.S. and E.U. Populations

Given (1977) showed that murder rates among groups as diverse as 13th-century Englishmen; 19th-century Euro-American gold miners in Colorado, California, and Alaska, Hispanics in urban Mexico City, Caracas, and Bogota; Asians in urban Hong Kong and Tokyo, and 21st U.S. and E.U. populations, were the same. These groups can be tentatively assumed to be representative of the U.S. and E.U. population demographics.

Table 3a. Demographics Adult and Teen, Adult, Teen: At-Risk Groups with U.S. E.U. Population and X^2

Demographic	U.S. Population	Group	X^2	E.U. Population	X^2
Combined Adults + Teens (*N*=136)					
Boy-Girl Ratio	48-52[a]	72-28	N.S.	45-55[c]	29.45*
Race-Ethnicity Ratio: African-American	31[b]	52	24.77*		
Euro-American	54[b]	26			
Hispanic American	12[b]	14			
Other (Asian, Filipino, Native American Indian)	3[b]	8			
Family Ratio Orphan	4[b]	8		3[d]	
Single Parent	27[b]	52		12d	
Step Parent	10[b]	14		6[d]	
Mother + Father	59[b]	32		77[d]	
Adults (*n*=79)					
Boy-Girl Ratio	48-52[a]	71-29	N.S.	45-55[c]	27.31*
Race-Ethnicity Ratio African-American	31[b]	53	21.38*		
Euro-American	54[b]	27			
Hispanic American	12[b]	14			
Other (Asian, Filipino, Native American Indian)	3[b]	6			
Family Ratio Orphan	4[b]	4		3[d]	135.98*
Single Parent	27[b]	51		12[d]	
Step Parent	10[b]	10		6[d]	
Mother + Father	59[b]	35		77[d]	
Teens (*n*=57)					
Boy-Girl Ratio	48-52[a]	74-26	N.S.	45-55[c]	35.97*
Race-Ethnicity Ratio African-American	31[b]	57	36.02*		
Euro-American	54[b]	26			
Hispanic American	12[b]	14			
Other (Asian, Filipino, Native American Indian)	3[b]	9			
Family Ratio Orphan	4[b]	9	N.S.	3[d]	263,21
Single Parent	27[b]	54		12d	
Step Parent	10[b]	11		6[d]	
Mother + Father	59[b]	26		77[d]	

[a] Juvenile Offenders and Victims 2006 National Report, U.S. Department of Justice. [b] U.S. Census Bureau, 2006. [c] United Nations Economic Commission, Statistical Yearbook of the Economic Commission of Europed, 2003. [d] Speder (2005) Demographic Research: Diversity of Family Structure in Europe. E.U. includes Austria, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, The Netherlands, Portugal, Spain, Sweden, United Kingdom (England and Wales), Andorra, Cyprus, Liechtenstein, Monaco, Norway, Switzerland, Turkey, Albania, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia, *p< .01.

In the U.S. Census Bureau, the United Nations Economic Commission, Statistical Yearbook of the Economic Commission of Europe, Trends in Europe and North America, the U.S. Department of Justice, Juvenile Offenders and

Victims 2006 National Report, the National Longitudinal Survey of Youth, and the Demographic Research on the Diversity of Family Structure in Europe (Speder, 2005) records, the U.S. and E.U. gender, race/ethnicity, and family compositions were obtained. The purpose was to compare with the random samples of the combined adult and teen, the adult, and the teen homicidal, overdosing-substance-abusing, sex-offending, and suicide-completer, and controls with the U.S. and E.U. populations.

X^2 were computed to show that the U.S. and E.U. population and the study groups' demographics were similar. See Table 3a. The purpose of the comparisons was to give one an idea of the generalizability of the results. X^2 were calculated between the combined adults, and teens on gender ratios, race/ethnicity ratios and family composition ratios and the demographics of the overall populations of the U.S. and E.U. In summary, the study groups (combined, adults and teens) had more African Americans and fewer Euro-Americans, than the U.S. population.

Summing up, the study groups (combined, adults and teens) had more boys, more single parents, and fewer mother + father families, than the E.U. population. In the comparison, of the overall U.S. population and the combined adults and teens gathered in Cook County, Illinois for this study, the African-American ratio and the Euro-American ratio was significantly ($p < .01$) different, i.e., in the general U.S. population, there were fewer African Americans, more Euro-Americans.

For the overall E.U. population compared to study group of combined adults and teens, the combined group were significantly ($p < .01$) different, i.e., in the general E.U. population, there were fewer boys and more girls, and fewer single parents and more mother + father families. The majority of the significant comparisons were on demographics, which have been shown to be predictive of criminal behavior (homicide and sex-offending): gender ratio (most violent criminals are male), race/ethnicity (more risk factors, and thus, greater representation of minorities in violent criminal groups due to poverty), and broken families (since these family structures are risk factors for violence). Thus, there were no unexpected differences between the study groups of combined adults and teens, adults and teens and the general U.S. population.

6.14 Measures: A Set of MLIT to Find Most At-Risk

Several tests were chosen, after an exhaustive review of the research, on the sensitivity and the specificity of actuarial evaluations. Tests with high reliability and validity were chosen. A longer list of questions was thought to be required to achieve both sensitivity and specificity. There is considerable empirical literature attesting to the test-retest reliability of these tests in a variety of populations over time. A brief description of the selected tests follows, along with the data collection, decision making algorithm, statistics and experimental design.[1]

[1] **(F15a) Ammons Quick Test** (QT) is a brief, norm-referenced assessment of receptive vocabulary, in a four-choice, picture format with three alternate forms, which takes five to 15 minutes to administer (Ammons and Ammons, 1962; Zagar *et al.*, 2013). The QT was developed before the Peabody Picture Vocabulary Test (Dunn and Dunn, 1959; Vance and Singer, 1979; Dunn and Dunn, 1997), and is commonly used to screen in prisons for intellectual or learning disabilities. The QT can be employed with children through adults and has been used with patients, students, and employees (Mednick, 1969; Advokat, Eustis, and Pickering, 2005; Zagar, Kovach, Busch, Zablocki, Osnowitz, *et al*., 2013). **(F15b) Beck Suicide Scale (**BSS) is a 21-item test with three-choice format, which requires five minutes to complete. The BSS is intended to assess potential for suicide. The BSS uses self-descriptive statements on depression and suicide thoughts, like crying, failure, fatigue, guilt, insomnia, and irritability. This assessment also deals with pessimism, punishment, sadness, weight loss, and withdrawal and has a reliability and validity from .70 to .90 (Beck, 1978, 1991). The BSS was given to 50 outpatients, and the correlation between their self-report of suicidal thoughts and independent clinicians rating suicidal ideation was .95 (Beck and Steer, 1981). Within a group of 25 outpatients, the Cronbach's alpha or coefficient of internal consistency was .97 (Beck, 1978; 1981). The 50 inpatients and 25 outpatients self-reports of suicidal thoughts were more severe, than the independent clinicians ratings of suicidal ideation (Beck, Steer, and Renairi, 1988). Among 50 inpatients, the correlation between self-reports of suicidal thoughts and independent clinician ratings of suicidal ideation was .96 (Beck, Kovacs, and Weisman, 1975). Among 90 suicidal (41 men, 59 women), the coefficient of internal consistency on the suicidal scale was .89, while the correlation of self-reported suicidal thoughts and independent clinician ratings of suicidal ideation, was .83 (Beck, Kovacs and Weisman, 1979). The test-retest reliability was .41 (Beck and Lester, 1976). The best measure of the criterion of suicidal ideation is the one, which has the behaviors, which encompass the attributes of suicide (Beck, Resnik, and Lettieri, 1974; Beck, Morris, and Beck, 1974; Beck, Weisman, Lester, and Trexler, 1976; Bedrosian and Beck, 1979). **(F15c) MMPI Second Edition (MMPI–2) and / or the Adolescent Edition (MMPI–A)** is an evaluation of mental health, personality and deceptive self-presentation. Across the three editions, with item duplication, the computerized test takes less than 60 minutes to complete. The MMPI–2 for adults has 567 true-false format questions, while the MMPI–A for adolescents has 478 true-false items. Administration via machine-learning on the internet, allows for instantaneous scoring and report generation, with a precision that exceeds 90%, in detecting mental illness. The MMPI alone is not sufficient in assessing violent-prone persons, because within the more than 100 scales, there is no reliable, sensitive-specific, valid measure of violence. This is why, many court, hospital and human resource professionals add a probation parole decision making risk test, like the Standard Predictor to the MMPI. Over 19,000 empirical studies and 250 appellate court cases attest to the usefulness of this assessment, which originated in the 1930s. The QT, MMPI, SP and the other tests in this study,

assess employees in airlines, military, nonprofits/religious organizations, power generation industries, police and fire public safety, trucking and ports, veterans, worker compensation and personal injury insurance clients, and also prisoners (Butcher and Pancheri, 1976; Butcher, Dahlstrom, Graham, Tellegen, and Kaemmer, 1989; Butcher, 1996; Pope, Butcher, and Seelen, 2004; Butcher, Gucher, and Hellervik, 2009). The MMPI-RF was not included. **(F15d) Raven Advanced Progressive Matrices** ('Raven test': Raven, 1965, 1990) is a norm-referenced measure of visual, nonverbal problem solving, which has been standardized in more than 54 countries (Flynn, 1984, 1987). The 48 challenging problems are presented in a multiple-choice format of 6 or 8. The computer administration and scoring takes 25 to 45 minutes, depending upon the problem or puzzle capability of the test subject (Shultz, Kaye, and Hoyers, 1980; Dillon, Pohlman, and Lohmen, 1981; Pietariu, 1986). **(F15e) Standard Predictor of Violence Potential** (SP) is an assessment of adults, with 96 true-false or multiple-choice format items and an Area under the Curve (*AUC)* = .99. The SP for Adolescents has 116 items with *AUC* = .91. The test-retest reliability was .75-.76 and Cronbach's alpha of .75-.78 with sensitivity of 97% and specificity of 97%. The SP includes specific, historical self- descriptions and requires 15 minutes to complete. The SP has no items from any of the other tests and is a free standing instrument with 96 or 116 independent items, distinct from the other tests. This measure was successful in discriminating randomly selected violent offenders (1,595 adults and 1,127 adolescents) from matched controls with *AUC* = .96 in a combined adult and adolescent version, based on a sample of 2,722 (Zagar and Grove, 2010). This *AUC* is noteworthy because most tests in the literature attempting to predict criminal recidivism or "return to court" have *AUCs* from .7 to .8 (Moosman, 2013). **(F16) Data Collection** Testing of these individuals was done to assess current functioning and address the hypotheses, as well as the more immediate issues of offering interventions, assessing fitness for duty, schooling, screening, and/ or medical or psychological treatment. Then, records for these individuals were obtained from court, industry, hospital, school, and/or universities. The records were checked and accepted as accurate, with regard to convictions and illnesses. Records were examined for previous court contacts for neglect, substance-dependency, physical and sexual abuse, delinquent and criminal oneness such as truancy, disorderly conduct, solicitation, phone harassment, forgery, mob action, violating a court order, drug possession or sales, property damage, auto theft, theft, burglary, robbery, unlawful weapon possession [firearm(s)], arson, assault or battery, aggravated criminal sexual assault, and homicide (same procedure as used in Zagar, Busch, Grove, and Hughes, 2009, and Zagar, Kovach, Basile, Hughes, Grove, *et al.*, 2013). Of the 146 participants, approximately 20 traveled in for the examinations from adjoining states of Indiana, Michigan, Minnesota, Wisconsin, and New Jersey, referred from airlines, courts, energy production industries, insurance firms, trucking companies, and lawyers. This sample included some people most at-risk for violence, including those with issues related to alcoholism, assault, autism, behavior and emotional school disturbance, career delinquency or criminality, cognitive delay, credibility issues such as malingering and facetiousness, divorce or separation, domestic violence, hyperactivity, lack of work skills, learning disability, physical, sex-offending or homicidal tendencies, marital challenges, mental illness, pedophilia, post-chemotherapy, sexual or verbal abuse, school dropout, somatoform disorders, substance addiction, suicidal attempt or ideation, underachievement, and vocational guidance. The referrals were for competence to stand trial, developmental disability, hearing, motor, speech, or visual challenges, employment hiring, promotion or termination, high school, college, graduate school or seminary entrance, local, national or international adoption, parole or probation hearings, physical or personal injury, pre-sentencing, pre-trail, seminary, travel with pet on airlines, and workers compensation issues. Of course records are not infallible and some individuals with mental illness may go undetected, or not have hospital or legal records. **(F17) Psychological Examinations** According to the published test manual instructions, two different psychologists administered the QT, the BSS, the MMPI–2/A, Raven and the SP Adult or Adolescent Version The order of test administration was randomized. For the hand scoring of the raw test data, the two independent psychologists had inter-observer agreement (Pearson *r*s = .93–.94). All of the MMPI data were scored using the Pearson Assessment and University of Minnesota Press computerized Clinical Interpretative Report. The instruments had high test-retest reliability, large standardizations samples, good internal consistency, and high concurrent and construct validity. When possible the tests were administered on the internet. **(F18) Records** After physical and psychological examinations, current medical and other records were coded using the International Classification of Diseases (ICD–9; World Health Organization, 1977) and the Diagnostic Statistical Manual V (American Psychiatric Association. 2013) and juvenile and adult court and school and industry records were reviewed by two independent psychologists, with coefficients of inter observer agreement of *r*=.92-.94. **(F19) The Decision-making Algorithm** For adults or adolescents, using the record and test data, two independent psychologists' classified individuals with the following algorithm, to assess mental health including substance-abuse using test results: (a) s QT score below 70 is consistent with cognitively delayed functioning, as was (b) Raven's with a score below 70. (c) A (BSS score of 10-20 or more, in the moderate to severe range of major depression, with suicide ideation. (d) The MMPI–2 (MMPI–2) or the MMPI–A with significantly ($p < .01$) elevated validity and/or basic clinical scales consistent with a *t* score of 65 or above. Finally, (e) the SP Adult version cut-off was 70.6%, the lowest score of convicted violent offenders; the SP Adolescent version cut-off was 82.9%, the lowest score of convicted adolescent violent offenders (Zagar and Grove, 2010). With this decision-making algorithm, for the two independent psychologists, Pearson product moment coefficients of inter-observer agreement were .92–.96 ($p < .01$). The results of this algorithm were compared with records of the individuals' actual histories. **(F20) Statistics and Experimental Design** For adults, adolescents, and the combined group (adults plus adolescents), the means and standard deviations were computed for age, sex, race, SES, years of education completed, occupation, and offenses. For adults, adolescents, and the combined group, the test scale means and standard deviations were normally distributed according to the Komolgorov-Smirnov Test and met the assumptions of homogeneity of variance on Bartlett's test. In simple terms, the data was normally distributed and homogenous, conditions for both *t*-tests and analysis of variance (*ANOVA*s). For the domains and tests employed, the sample size was sufficient (Kirk, 1982). The criterion for mental health including substance-abuse, abuse, and delinquency or crime was the individuals' actual records. These included court or health records of mental illness, substance-abuse, violence, and / or abuse. For example, if the records showed a finding of mental illness, it was assumed that the individual had mental illness, and so forth for the various criteria, substance-abuse, violence, and/or abuse. This carefully selected set of tests was administered either by paper- and-pencil or over the internet with a

6.21 Results

6.22 Analysis of Variance (ANOVA)

Since theoretical considerations drove the comparisons, over modeling (Type 1 error) was avoided. The distribution of means and standard deviation t-scores of tests or risks for each subgroup, are shown in Table 3a and 3b. The five study groups' subgroups, whether adult or teen, had unequal sizes, so for clarity, means and standard deviations *t*-scores were presented to allow comparison across tests and subtests, which had also different numbers of items. The adult and teen study groups had significant ($p < .05$) differences when at-risk were compared with controls. Also, adult and teen subgroups of homicidal, overdosing-substance-abusing, sex-offending, suicide-completers, and controls had similar *t*-score means and standard deviations in the same consistent, replicated pattern of risks, the "7-point violence profile" was expected. See Table 3a, 3b, 3c, and Figures 4 and 5.

6.23 Adult Homicidal vs. Control Study Groups

The distributions of means and standard deviations *t*-scores for adult homicidal and control study groups are shown in Table 3a and Figure 4. Significantly ($p < .05$), adult homicidal compared with controls had higher SP scores, increased MMPI-2 false inconsistency (VRIN), infrequency (F), infrequency at the back end of the test ($F_{B)}$, infrequency of psychopathology (F_{P}), lie (L), defensiveness (K), superlative self-presentation (S), hypochondriasis (Hs), depression (D) (2), psychopathic deviate (Pd) (4), masculinity-femininity (Mf), paranoia (Pa) (6), psychasthenia or obsessive compulsiveness (Pt) (7), schizophrenia (Sc) (8), hypomania or bipolar (Ma) (9), schizophrenia Si (10), alcoholism (MAC-R), and addiction admission (AAS) scores, increased BSS scores, and lower QT receptive vocabulary IQs.

6.24 Adult Overdosing-Substance-Abusing vs. Control Study Groups

Significantly ($p < .05$), adult overdosing-substance-abusing compared with control study groups had higher false inconsistency (VRIN), infrequency (F), infrequency at the back end of the test ($F_{B)}$, infrequency of psychopathology ($F_{P)}$, lie (L), defensiveness (K), superlative self-presentation (S), hypochondriasis (Hs), depression (D) (2), psychopathic deviate (Pd) (4), masculinity-femininity (Mf), paranoia (Pa) (6), psychasthenia or obsessive compulsiveness (Pt) (7), schizophrenia (Sc) (8), hypomania or bipolar (Ma) (9), Si (10), alcoholism (MAC-R), addiction potential (APS), and addiction admission (AAS) MMPI-2 scores, elevated SP scores, increased BSS scores, and lower QT receptive vocabulary IQs as seen in Table 3a and Figure 4.

6.25 Adult Sex-Offending vs. Control Study Groups

The distributions of means and standard deviations *t*-scores for adult sex-offending and control study groups are shown in Table 3a and Figure 4. Significantly ($p < .05$), adult sex-offending compared with controls had higher SP scores, increased false inconsistency (VRIN), infrequency (F), infrequency at the back end of the test ($F_{B)}$, infrequency of psychopathology ($F_{P)}$, lie (L), defensiveness (K), superlative self-presentation (S), hypochondriasis (Hs), depression (D) (2), psychopathic deviate (Pd) (4), masculinity-femininity (Mf), paranoia (Pa) (6), psychasthenia or obsessive compulsiveness (Pt) (7), schizophrenia (Sc) (8), hypomania or bipolar (Ma) (9), and social introversion (Si) (10), alcoholism (MAC-R), and addiction admission (AAS) MMPI-2 scores, increased BSS scores, but lower QT receptive vocabulary IQs.

6.26 Adult Suicide-Completers vs. Control Study Groups

The distributions of means and standard deviation *t*-scores of adult suicide-completers and control study groups are shown in Table 3a and Figure 4. Significantly ($p < .05$), adult suicide-completers compared with controls had higher SP, increased false inconsistency (VRIN), infrequency (F), infrequency at the back end of the test ($F_{B)}$, infrequency of psychopathology ($F_{P)}$, lie (L), defensiveness (K), superlative self-presentation (S), hypochondriasis (Hs), depression (D) (2), psychopathic deviate (Pd) (4), masculinity-femininity (Mf), paranoia (Pa) (6), psychasthenia or obsessive compulsiveness (Pt) (7), schizophrenia (Sc) (8), hypomania or bipolar (Ma) (9), and social introversion (Si) (10), alcoholism (MAC-R), and addiction admission (AAS) MMPI-2, increased BSS, but lower QT vocabulary IQs.

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total test time of 110-440 min. for 823 items. In the internet format, tests with automated reports cost 70 to 80% less than current paper-and-pencil version reports. Also, percentiles, raw and *t* scores, and cut-offs were available instantaneously, except for MMPI clinical interpretative report, which does not provide percentiles but t-scores. When the paper-and-pencil versions were used, two independent psychologists verified the entry independently, matching the computerized reports with *r=.98* consistency, because most jails and prisons and some other situations, do not allow computers. First, the adult 5 group data were subjected one way *ANOVA*. Then the teen data were subject to *ANOVA*. All of the psychometric measures or dependent measures met the assumptions of normality (Kolmogorov Smirnov Tests) and homogeneity of variance (Bartlett's Tests).

Table 3a. Adult (*N*=79) Homicidal, Overdosing, Sex-Offending, Suicide-Completers, and Controls Average and Standard Deviation *t*-scores and *ANOVA Fs* with "7-Point Violence Profile"

Test(subtest) *t*- scores (*M*=50, *SD*=10)	Homicidal (*n*=12)	Overdosing- Substance-Abusing (*n*=13)	Sex- Offending (*n*=15)	Suicide- Completers (*n*=15)	Controls (*n*=24)	F_4
BSS	56.75 (14.60)	65.38 (17.45)	57.80 (14.66)	72.87 (9.09)	45.58 (3.43)	13.73+
Standard Predictor	63.25 (12.22)	51.08 (0.28)	64.2 (10.95)	69.47 (14.39)	52.37 (3.35)	11.79+
QT Vocabulary IQ	54.63 (14.13)	50.62 (8.87)	56.8 (7.91)	50.74 (9.24)	61.67 (9.21)	4.11+
MMPI-2 VRIN	58.25 (9.74)	61.62 (10.37)	62.27 (8.65)	61.73 (13.33)	44.83 (8.15)	11.36+
MMPI-2 F	76.83 (10.93)	69.54 (11.5)	76.73 ((9.79)	72.6 (11.54)	44.88 (6.12)	38.74+
MMPI-2-Fb	72.83 (16.04)	79.31 (18.88)	75.3 (15.36)	66.4 (16.99)	46.96 (4.94)	15.96+
MMPI-2 Fp	68.25 (13.08)	74.77 (15.31)	68.80 (12.65)	66.20 (10.65)	44.17 (5.37)	22.51+
MMPI-2 L	59.67 (9.43)	53.85 (11.24)	57.80 (11.54)	63.47 (12.19)	52.46 (11.98)	2.56*
MMPI-2 K	44.75 (8.45)	49.77 (12.5)	50.33 (12.37)	54.13 (9.32)	57.75 (11.94)	3.16*
MMPI-2 S	43.58 (8.96)	45.46 (10.71)	48.0 (8.79)	51.13 (12.41)	57.04 (10.94)	4.54+
MMPI-2-1 Hs	59.33 (14.62)	68.77 (9.66)	64.93 (11,29)	63.47 (10.88)	48.04 (9.97)	9.94+
MMPI-2- 2 D	74.50 (17.50)	73.54 (10.81)	74.13 (7.08)	68.93 (10.9)	49.00 (8.69)	20.11+
MMPI-2 4 Pd	67.42 (7.82)	79.00 (9.28)	73.0 (12.69)	74.33 (10.24)	53.83 (11.35)	16.22+
MMPI-2 -5 Mf	53.58 (7.24)	56.0 (13.02)	54.27 (6.44)	57.27 (6.54)	48.17 (10.59)	2.84*
MMPI-2-6 Pa	73.67 (7.55)	81.77 (9.33)	81.47 (10.41)	78.93 (7.77)	51.29 (10.31)	38.53+
MMPI-2 -7 Pt	63.75 (13.25)	71.69 (11.67)	69.73 (13.08)	66.0 (11.83)	49.58 (7.46)	12.24+
MMPI-2-8 Sc	75.75 (15.55)	81.08 (10.33)	80.33 (13.2)	77.33 (15.14)	51.96 (8.45)	20.07+
MMPI-2-9-Ma	52.42 (11.6)	67.31 (8.12)	58.67 (11.82)	60.33 (13.81)	48.71 (9.69)	7.08+
MMPI-2- 10 Si	60.17 (9.13)	58.0 (8.09)	59.2 (8.22)	52.73 (7.94)	46.38 (8.67)	8.75+
MMPI-2 MAC-R	53.00 (11.05)	59.69 (12.88)	57.47 (4.45)	55.73 (7.96)	48.46 (8.64)	4.15+
MMPI-2 AAS	50.50 (7.73)	66.00 (11.22)	61.53 (15.95)	52.40 (9.96)	46.83 (8.47)	8.71+

Note.—The MMPI–2 and MMPI–A have different items, sets, and length, i.e. 567 vs. 468 items with the same 13 basic clinical and 3 validity scales; scores cannot be added; +$p < .01$ *$p < .05$.

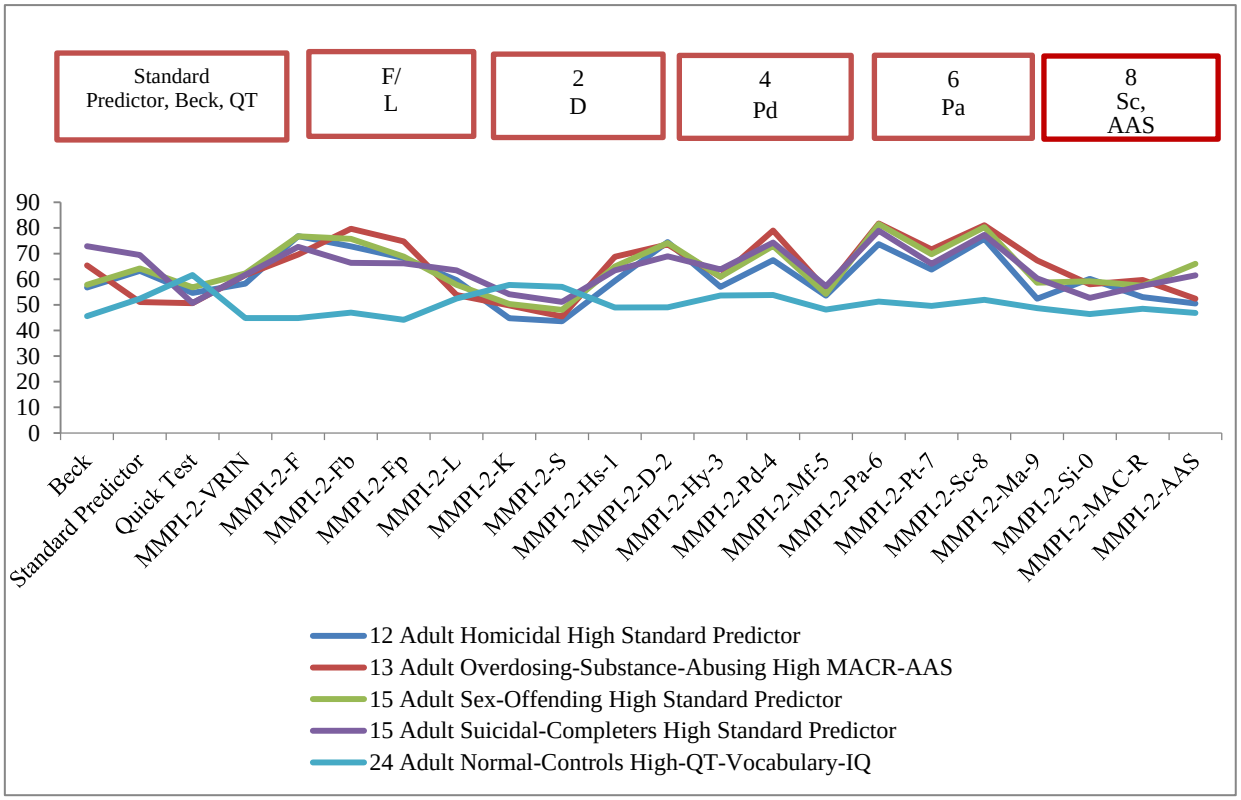

Figure 4. "Adult (N=79) 7-Point Violence Profile:" Mean *t*-Scores of BSS, SP, QT, and MMPI-2 Faking/Lying (F/L) Depression (D) Psychopathic Deviate (Pd) Paranoia (Pa) Schizophrenia (Sc) and Addiction Admission (AAS) Subtests

In viewing Figure 4, the adult average and standard deviation *t*-scores of the BSS, MMPI-2, QT, and SP, were significantly (p<.05.) higher for the four at-risk study groups (homicidal, overdosing-substance-abusing, sex-offending, suicide-completers) compared with control study group. This is consistent with what was found among the teens and confirms similar profiles from 320,051 subjects in 212 studies over 95 years. The suicidal-overdosing followed by the sex-offending, and the homicidal study groups had t-scores at least one standard deviation above normal (t_{mean} = 50; $t_{\text{standard deviation}}$ = 10). The small sample sizes may account for homicidal study group having lower violence potential scores than the other at-risk study groups.

6.27 Teen Homicidal vs. Control Study Groups

The distributions of means and standard deviation *t*-scores of teen homicidal and control study groups are shown in Table 3b and Figure 5. Significantly (p < .05), teen homicidal compared with control study groups had higher SP scores, increased exaggeration (F1), lie (L), defensiveness (K), depression (D) (2), psychopathic deviate (Pd) (4), paranoia (Pa) (6), schizophrenia (Sc) (8), and addiction admission (ACK) MMPI-A scores, and elevated BSS scores, but lower Raven problem solving IQs.

6.28 Teen Overdosing-Substance-Abusing vs. Control Study Groups

The distributions of means and standard deviation *t*-scores of teen overdosing-substance-abusing and control study groups are shown in Table 3b and Figure 5. Significantly (p < .05), teen overdosing-substance-abusing compared with controls, had increased SP scores, higher exaggeration (F1), lie (L), defensiveness (K), depression (D) (2), psychopathic deviate (Pd) (4), paranoia (Pa) (6), schizophrenia (Sc) (8), and addiction acknowledgement (ACK) MMPI-A scores, and elevated BSS scores, but lower Raven problem solving IQs.

6.29 Teen Sex-Offending vs. Control Study Groups

The distributions of means and standard deviations of *t*-scores of teen suicide-completer and control study groups are shown in Table 3b and Figure 5. Significantly (p<.05), teen suicide-completers compared with controls had higher SP scores, increased exaggeration (F1), lie (L), defensiveness (K), depression (D) (2), psychopathic deviate (Pd) (4), paranoia (Pa) (6), schizophrenia (Sc) (8), and addiction acknowledgement (ACK) MMPI-A scores, and increased BSS scores, but lower Raven problem solving IQs.

6.30 Teen Suicide-Completers vs. Control Study Groups

In Table 3b and Figure 5, the distributions of means and standard deviations *t*-scores of teen suicide-completer and control study groups are shown. Significantly (p<.05), the teen suicide-completers compared with control study group had higher SP scores, increased exaggeration (F1), lie (L), defensiveness (K), depression (D) (2), psychopathic deviate (Pd) (4), paranoia (Pa) (6), schizophrenia (Sc) 8), addiction acknowledgement (ACK) MMPI-A scores, and elevated BSS scores, but lower Raven problem solving IQs.

Table 3b. Teen (*N*=57) Homicidal, Overdosing, Sex-Offending, Suicide-Completers & Controls Average and Standard Deviation *t*-scores and *ANOVA Fs* with "7-Point Violence Profile"

Test (subtest) *t*-scores (*M*=50, *SD*=10)	Homicidal Teens (*n*=11)	Overdosing Teens (*n*=7)	Sex-Offending Teens (*n*=10)	Suicide-Completer Teens (*n*=17)	Control Teens (*n*=12)	F_4
BSS	46.36 (3.32)	62.71 (21.96)	58.50 (21.24)	83.12 (12.78)	44.08 (2.23)	18.93+
Standard Predictor	81.36 (7.62)	55.86 (12.43)	74.8 (18.41)	52.33 (9.99)	51.25 (3.45)	23.72+
Raven	43.55 (7.30)	50.43 (2.15)	46.0 (9.43)	46.71 (11.46)	54.67 (8.76)	2.59*
MMPI-A-F1	53.64 (5.89)	57.00 (10.77)	62.3 (6.45)	62.06 (7.17)	53.08 (8.07)	3.41+
MMPI-A –L	54.55 (8.71)	57.43 (13.39)	67.6 (11.64)	56.29 (13.56)	49.17 (9.31)	3.60+
MMPI-A-K	50.00 (6.63)	59.00 (6.62)	46.3 (7.21)	54.82 (12.12)	44.50 (7.26)	4.35+
MMPI-A-2	70.36 (11.72)	63.43 (11.24)	76.6 (10.69)	71.23 (11.22)	55.17 (9.21)	6.59+
MMPI-A -4-Pd	74.18 (12.55)	66.57 (9.32)	78.2 (14.37)	67.82 (8.88)	51.58 (4.70)	11.15+
MMPI-A -6 Pa	81.91 (18.45)	70.0 (8.83)	74.4 (13.99)	63.35 (16.18)	54.42 (6.04)	6.54+
MMPI-A -8-Sc	71.82 (14.63)	66.14 (6.26)	67.7 (7.78)	64.53 (13.78)	55.33 (6.61)	3.46+
MMPI-A -ACK	59.82 (7.48)	64.57 (15.18)	59.60 (9.52)	55.53 (5.94)	52.67 (8.13)	2.57*

Note.—The MMPI–2 and MMPI–A have different items, sets, and length, i.e. 567 vs. 468 items with the same 13 basic clinical and 3 validity scales; scores cannot be added; +p < .01 *p < .05.

In viewing Figure 5, it is clearly seen that the teen average and standard deviation *t*-scores of the BSS, MMPI-A, QT, and SP, were significantly (p<.05.) higher for the four at-risk study groups (homicidal, overdosing-substance-abusing, sex-offending, suicide-completers) compared with controls. This is consistent with what was found among the adult study groups and is consonant similar profiles from 320,051 subjects in 212 studies over 95 years. In this comparison of teen study groups, the homicidal study group, followed by the sex-offending study group, had the highest violence potential scores.

6.31 Comparing Adult and Teen Study Groups Average t-Scores

When the adult (*N*=79) and teen (*N*=57) homicidal, overdosing, sex-offending, suicide-completer, and control study groups average and standard deviation *t-scores* of the SP, BSS, and MMPI-2/A were compared, they were similar. The *ANOVA Fs* were insignificant (p < .05). This means that the adult and teen study groups of homicidal, overdosing, sex-offending, suicide-completers, and controls were homogenous. This also can be interpreted as the BSS MMPI-2/A, QT, Raven, and SP were consistent in measuring the constructs across homogenous at-risk groups, whether adult or

teen.

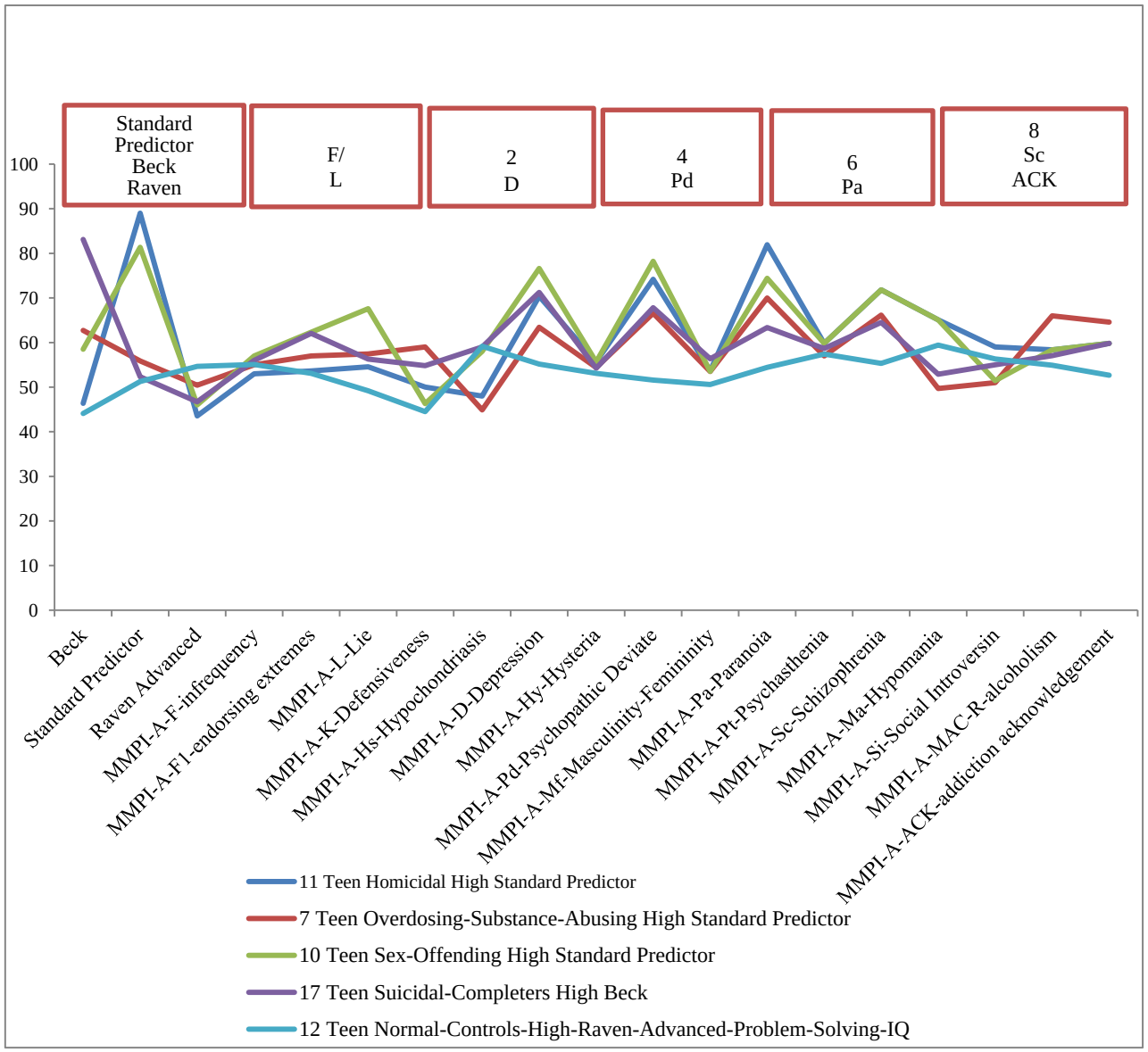

Figure 5. Teen (*N*=57)"7-Point Violence Profile": BSS, SP, Raven, and MMPI-A Faking/Lying (F/L) Depression (D) Psychopathic Deviate (Pd) Paranoia (Pa) Schizophrenia (Sc) Addiction Acknowledgement (ACK)

See Table 3c. In Table 3d there is a summary of the "7-point violence profile" across adult and teen homicidal, overdosing, sex-offending and suicidal-completers, namely the BSS, SP, Raven, and MMPI-2/A faking, depression, psychopathic deviate, paranoia and schizophrenia scales or “F-2-4-6-8.”

6.32 Internal, External, Construct, and Statistical Conclusion Validity Threats

Variations in means, standard deviations and *ANOVA Fs* are due to error in tests or testing, differences in the history of individuals within subgroups, generalizability, measured traits, measurement, reliability, sampling variations, selection error, setting of the test administration, time of original data collection, scaling, statistical analyses, validity and probably many unknown factors. Despite this variability and the overlap of ranges, when at-risk male and female, adult and teen, homicidal, overdosing-substance-abusing, sex-offending, suicide-completer study groups were compared with control study groups, the data were robust enough to identify significant differences. Researchers in the past century have found overlap and variability in assessing at-risk. Such variability is the reason why, careful attention to detail and longitudinal data collection from multiple examinations in many settings is necessary in this kind of study. For over a century, the Circuit Court of Cook County has collected multiple examinations and records

from many sources. The risks found among high-density urban, adult and teen, homicidal, overdosing, sex-offending, and suicide-completers were similar to the findings in abovementioned research findings around the world.

Table 3c. Similar Adult & Teen "7-Point Violence Profile" for Homicidal, Overdosing, Sex-Offending, Suicidal, & Controls Average and Standard Deviation Scores and *ANOVA Fs*

Test *t*-scores (*M*=50, *SD*=10)	12 Homicidal Adults	11 Homicidal Teens	F_{22}	13 Overdosing Adults	7 Overdosing Teens	F_{19}	15 Sex-Offending A- dults	10 Sex-Offending Teens	F_{24}	15 Suicide-Completer Adults	17 Suicide-Completer Teens	F_{31}	24 Control Adults	12 Control Teens	F_{35}
BSS	56.75 14.60	46.36 3.32	4.67*	65.38 17.45	62.71 21.96	0.09	57.80 14.66	58.50 21.24	0.01	72.87 9.09	83.12 12.78	6.66*	45.58 3.43	44.08 2.23	1.88
SP	63.25 12.22	81.36 7.62	11.33+	51.08 0.28	55.86 12.43	2.02	64.2 10.95	74.8 18.41	3.28	69.47 14.39	52.33 9.99	2.45	52.37 3.35	51.25 3.45	1.48
MMPI-2/AL	59.67 9.43	54.55 8.71	0.84	53.85 11.24	50.43 2.15	0.41	57.80 11.54	67.6 11.64	4.30*	63.47 12.19	56.29 13.56	0.03	52.46 11.98	49.17 9.31	0.69
MMPI-2/AK	44.75 8.45	50.00 6.63	3.95	49.77 12.5	57.00 10.77	3.01	50.33 12.37	46.3 7.21	0.86	54.13 9.32	54.82 12.12	0.34	57.75 11.94	44.50 7.26	12.39+
MMPI 2/AD 2	74.50 17.50	70.36 11.72	0.34	73.54 10.81	57.43 13.39	3.88	74.13 7.08	76.6 10.69	0.48	68.93 10.9	71.23 11.22	0.56	49.0 8.69	55.17 9.21	3.87
MMPI-2/APd 4	67.42 7.82	74.18 12.55	0.93	79.00 9,28	59.00 6.62	8.13*	73.0 12.69	78.2 14.37	0.91	74.33 10.24	67.82 8.88	3.71	53.83 11.35	51.58 4.70	0.43
MMPI-2/APa 6	73.67 7.55	81.91 18.45	0,08	81.77 (10.33)	63.43 (11.24)	7.50+	81.47 10.41	74.4 13.99	2.10	78.93 7.77	63.35 (16.18)	11.53+	51.29 10.31	54.42 6.04	0.93
MMPI-2/ASc 8	75.75 15.55	71.82 14.63	0.72	81.08 10.33	66.57 9.32	12.05+	80.33 13.2	67.7 7.78	7.38*	77.33 15.14	64.53 13.78	6.27*	51.96 8.45	55.33 6.61	1.46

Note.—The MMPI–2 and MMPI–Ahave different items, sets, and length, i.e. 567 vs. 468 items with the same 13 basic clinical and 3 validity scales; scores cannot beadded; +$p < .01$ *$p < .05$.

Table 3d. "7-Point Violence Profile" of SP, BSS and MMPI-2/A Infrequency Depression Psychopathic Deviate Paranoia Schizophrenia or "F-2-4-6-8" Scales.

Homicidal Adults & Teens	SP, BSS, MMPI-2/A"F-L-2-4-6-8-AAS (ACK)"
Overdosing-Substance-Abusing Adults and Teens	SP, BSS, MMPI-2/A "F-2-4-6-8-AAS(ACK)"
Sex-Offending Adults and Teens	SP, BSS, MMPI-2/A "F-L-2-4-6-8-AAS(ACK)"
Suicide-Completer Adults and Teens	SP, BSS, MMPI-2/A "F-L-2-4-6-8-AAS(ACK)"
"7-Point Violence Profile" (SP, BSS & MMPI-2/A)	SP BSS infrequency/lie (deception), depression, psychopathic-deviance, paranoia, schizophrenic thinking, addiction

7. Discussion of How Using MLIT Widely Might Save Lives & Trillions

Whether among adults or teens, there were significant ($p < .05$) fluctuations in the deceptive self-presentation, psycho-pathology, suicide ideation, violence potential, receptive vocabulary and problem solving IQ t-scores, when homicidal, overdosing-substance-abusing, sex-offending and suicide-completer study groups were compared with control study groups. These results paralleled 212 studies of 320,051 homicidal, overdosing-substance-abusing, sex offending, and suicide-completer persons over 95 years consistently replicating these prior results. Most of the at-risk study groups had elevated SP, BSS, and MMPI/MMPI-2/MMPI-A scores [lie/infrequency, depression, psychopathic deviate, paranoia, schizophrenia and addiction (admission or acknowledgement)].

Informed professionals know this often repeated profile. Also, this confirms the often proven notion that actuarial MLIT with 97% sensitivity and specificity, were an improvement over current ways, which have a combined accuracy and precision of less than chance (39%). Given that each homicidal, overdosing-substance-abusing, sex-offending and suicide-completer study group case costs about $1,000,000 in lost lifetime earnings and considerable grief, actuarial MLIT offer leaders a solution. Based on U.S. 2016 data, 119,965 homicides, mass murder victims, overdosing-substance-abusing, and suicide-completers (FBI, 2012, Zagar, *et al.*, 2016, CDC, 2017, 2018) losses amount to $119,965,000,000 (119,965 at $1,000,000 each) of lifetime earnings, should not leaders promote wider use of MLIT to save money and lives? The limitations of this study are the small sample size and narrow age, family composition, gender,

occupation, and racial makeup of the study groups. Despite these impediments, the data are consistent with a "7-point violence profile" for adult and teen, homicidal, overdosing, sex-offending, and suicide-completer study groups. The largest expenses that are incurred by not using MLIT more widely are in psychiatric hospitalization, air transportation suicide victims, criminal athlete and sports club losses, the U.S. Roman Catholic Church pedophilia payouts including lost collections, daily U.S. veteran suicides, and excessive, historically and internationally, the highest imprisonment rate of nonviolent U.S. citizen-taxpaying-voters, who could be moved to electronic monitoring bracelets which cry out to be answered by current leaders. See Table 4.

Table 4. 28 Year (1992-2019 Loss of Lives or Victims and Money in 2019 U.S.

	Sector Over 28 Years	Victims	28 yrs. loss (2019 US $)
1	Over or needless psychiatric inpatient hospitalization	31,500	$4,410,000,000,000
2	Civilian homicides, overdoses, and suicides	2,458,650	2,485,650,000,000
3	Air, bus, train, and truck transport violence	8,111	245,110,000,000
4	Cumulative daily veteran suicides	236,870	236,870,000,000
5	Professional athlete, coach, owner, and trainer lost revenue from violence	3,000	55,952,733,308
6	Nonprofit Catholic Church pedophile payouts and lost collections	36,000	55,535,349,691
7	Diverting jailed nonviolent offenders to electronic monitoring	1,072,628	30,191,026,484
8	Health care worker, professor, teacher, and caretaker violence	60,000	30,000,000,000
9	Police suicides, deaths in- line- of- duty and malfeasance payouts	9,000	10,000,000,000
10	Mass murder or active shooting incidents	9,000	9,000,000,000
11	Energy, coal, electricity, gas, nuclear, oil, petroleum, and solar violence	47,483	4,748,300,000
12	Military homicides and suicides	12,450	124,500,000
	Total	3,989,552	$7,575,181,909,483

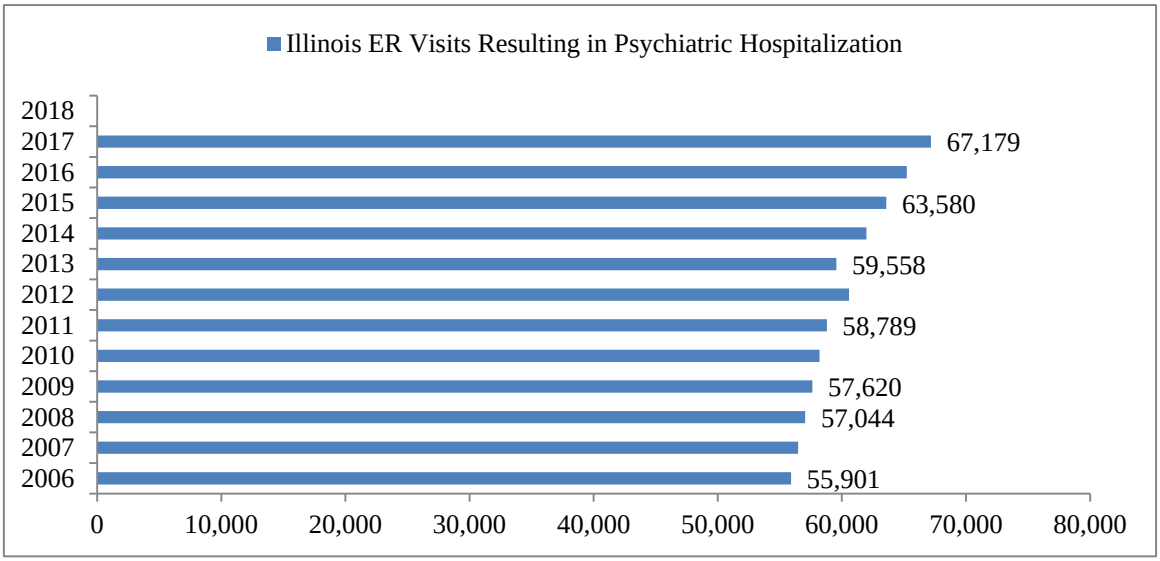

Figure 6. Illinois Psychiatric ER Visits Resulting in Hospitalization Costing $391,307,000 (2006) and $428,253,000 (2017) [(Dresden, *et al*., 2016].

There were: 1) the psychiatric hospitalization avoided due to insensitive nonspecific diagnosis by using MLIT; (2) the civilian homicides, overdoses and suicides; (3) the air, bus, train, truck transport; cumulative daily and yearly veteran suicides; (4) the cumulative daily veteran suicides; (5) the professional athlete, coach, trainer lost earnings and sports owners lost revenue; (6) the nonprofit religious pedophilia payouts and lost collections; (7) the jailing and imprisoning nonviolent offenders rather than electronic monitoring; (8) the health care worker physician professor teacher caretaker losses from violence; (9) the public safety suicides, deaths in line of duty and malfeasance payouts; (10) the mass murder or active shooting incidents; (11) the energy (coal, electricity, nuclear, oil, petroleum, solar) losses from violence; and (12) the military homicides and suicides.

7.1 Psychiatric Inpatient Hospitalizations Avoided

At-risk people come to hospital Emergency Rooms (ERs). In 2014, there were 136,300,000 ER visits. Over 10% (16,200,000) resulted in hospitalization. Just over 10% of those hospitalized made up the 2,100,000 psychiatric hospitalizations. The average psychiatric hospitalization cost increased 21% from $5,800 in 2003, to $7,000 in 2019. Compared with maternal neonatal, medical, surgical, and injury hospital stays, the psychiatric hospitalization was the longest (Weiss, Barrett, and Steiner, 2014). A short psychiatric ER visit for a medical exam or interview costs $56, which is more than all other ER visits. In 2003, the normal length for a psychiatric stay was 6.9 days, which went up to 7.4 days in 2011.

See Figure 6 for the increase in Illinois ER visits from 2006 to 2017. By using MLIT, actuarial assessment and psychiatric patients can be diverted from the hospital ER or soon after admission, lowering the psychiatric inpatient hospitalizations, saving $214,126,500 per year, just in Illinois.

Because of the failure to use MLIT in assessing at-risk over the past 28 years, there are 5,880,000 unnecessary psychiatric hospitalizations that cost $41,160,000,000. See Table 4. One percent of all health expenditures were for mental health and substance-abuse. In 2009, the spending on substance-abuse prescription medications was $887,000,000. Providers for mental health and substance-abuse received $171,720,000,000. This can be broken down into $147,381,000,000 for mental health. The remaining was spent on substance- abuse. A total of $10,461,000,000 was spent for inpatient, outpatient and residential services (U.S. Department of Health and Human Services, 2009; 2014).

7.2 Civilian Homicides, Overdoses and Suicides

In 2017, the U.S. annual 21,130 homicides, 66,839 overdoses, 9,832 sex-offenses, and 30,634 suicides sum up to 129,435 yearly violence victims. Since many of these are the result of a long history of mental illness, psychopathology and lack of work, using MLIT to intercept, and divert them to jobs would save lost lifetime earnings, medical, court and jail expenses, that over 28 years, equal 3,799,448 victims at a $1,000,000 loss per person or $3,799,448,000,000 (Criminal Justice Information Services, 2018).

Table 5. Number of Chicago Youth in Summer Jobs Programs to Divert from Violent Crime Over 10 Years

Year	Program	Number	High Schools	Lives Saved	Mayor	Sponsor
2009	Culture of Calm	250	6	29	Daley	OJJDP
2010	Culture of Calm	1,700	38	28	Daley	OJJDP
2011	Culture of Calm	1,700	38	28	Daley	OJJDP
2012	Culture of Calm	1,200	32	12	Daley	OJJDP
2012	1 Summer Chicago	1,634	13	27	Emanuel	Private Insurance Foundations
2013	1 Summer Chicago	5,216	42	86	Emanuel	Private Insurance Foundations
2014	1 Summer Chicago	22,500	179	86	Emanuel	Private Insurance Foundations
2015	1 Summer Chicago	24,679	186	86	Emanuel	Private Insurance Foundations
2016	1 Summer Chicago	25,000	199	86	Emanuel	Private Insurance Foundations
2017	1 Summer Chicago	31,151	248	86	Emanuel	Private Insurance Foundations
2018	1 Summer Chicago	32,223	256	86	Emanuel	Private Insurance Foundations
Total		147,253	256	640		

Using the research on MLIT actuarial assessment of at-risk, over a decade a teen diversion program in the city of Chicago, first named "Culture of Calm", funded by the U.S. Department of Justice ($78M) and later called "One Summer Chicago" funded by the insurance companies (Allstate, Liberty Mutual, and State Farm), the Chicago Public Safety Fund and settlements to the city of Chicago has saved 640 lives to date and millions in associated costs [$1,000,000 lost lifetime earnings or $640,000,000](One Summer Chicago, 2018; Zagar, *et al.*, 2013; 2016). See Table 5.

Using the same research on MLIT actuarial assessment of at-risk over a decade, the President of Cook County reduced the population of Cook County jails by 56%, diverting mostly nonviolent offenders. U.S. President Obama copied this approach in releasing 6,800 federal prisoners (by commutation or pardon).

This same research on at-risk that showed delinquents do not have executive function or decision making. Using this research, the U.S. Supreme Court in *Miller v. Florida* and *Graham v. Ala*bama ordered 2,500 life sentences without

parole juveniles to be re-examined and re-sentenced, often to time served. The Illinois governor along with other governors used this research to begin justice reform in various states. Based on this research, shared with the U.S. President Trump on 29 June, 2015, the Executive Branch and Congress passed the *First Step Criminal Justice Reform Bill,* which is projected to release 10,000+ jailed offenders.

7.3 Air, Bus, Train, and Truck Transportation Costs

From 1992 to 2015, there were 911 international and U.S., pilot-assisted, aircraft suicides (CAMI, 2006, 2014).With $1,000,000 lifetime earnings loss and a $1,000,000 military and airline training expense that is a loss of $1,822,000,000. See Figure 7. Bus and truck driver deaths make up 1% of the 40,000 yearly U.S. roadway fatalities (Toy, 2018). That is 400 lives lost at $1,000,000 lost lifetime earnings, which sum up to $400,000,000 in annual expenses. Over 30 years the loss is $1,200,000,000.

Annually, there are roughly 100 train deaths (Abbott, *et al.*, 2003; Rauti and Dogram, 2004; Weiss and Farrell, 2006).Yearly, these train accidents with a lost lifetime earnings cost of $1,000,000 are an expense of $100,000,000 that over 30 years cost $3,000,000,000. Every year there are 200 large truck accidents which cost $40,000,000 each and total to $8,000,000,000. Over 30 years that is an expense of $240,000,000,000 (Miller, 1997; Zaloshnja, Miller, and Spicer, 2000; National Center for Statistics and Analysis Advanced Research and Analysis, 2003; U.S. Department of Transportation, National Highway Traffic Safety Administration, 2014; Schneider and Palcski, 2018).

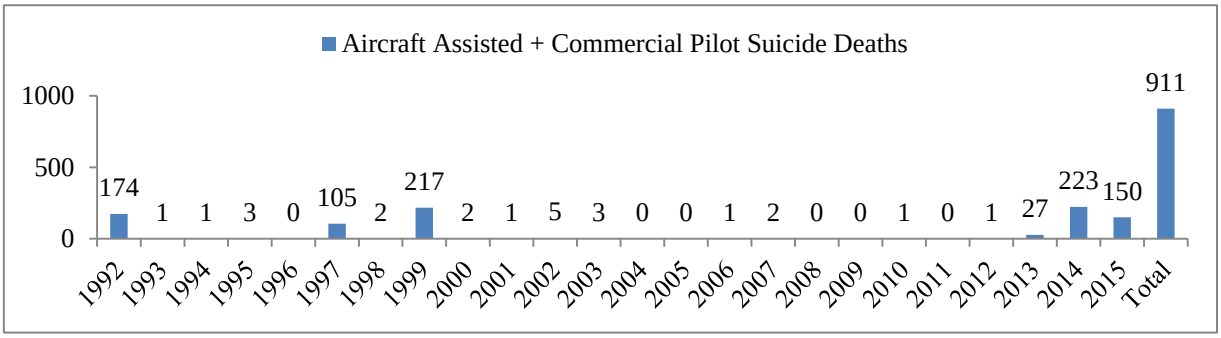

Figure 7. 911 Total 1992-2015 Aircraft Assisted + Commercial Pilot Suicides Costing $1.822B (CAMI, 2006: 2014)

7.4 Veteran Suicide Costs

Each year, 250,000 newly discharged, military join the already 22,000,000 veterans (Kessler, *et al.*, 2014; Army STARRS, 2004-2009; Schoenbaum, *et al.*, 2014; Nock, *et al.*, 2014). Veterans commit violence and have mental illness and substance-abuse challenges.

Among 20,000 veterans, 1-5% had chronic-fatigue-syndrome, 2% attempted suicide, 5% had a suicide plan, 4 to 12% had post-traumatic stress disorder (PTSD), 11% were substance-abusers, 14% were depressed with suicide thoughts, and 25% had mental illness or behavioral adjustment issues (Kang, *et al.*, 2003). In another study 60% of veterans were substance-abusing (U.S. Department of Veteran Affairs, Office of the Actuary, 2014).

Among 529,000 veterans, 2% had PTSD, 10% were disabled and 19% mentally ill (Coughlin, *et al.* 2013; U.S. Department of Veteran Affairs, Office of the Actuary, 2014). See Figure 8 for the 236,870 cumulative veteran suicides from 1990 through 2018 at $1M lost lifetime wages and $1M lost military training costs equals a $473.77 T loss (Zagar*, et al.,* 2016).

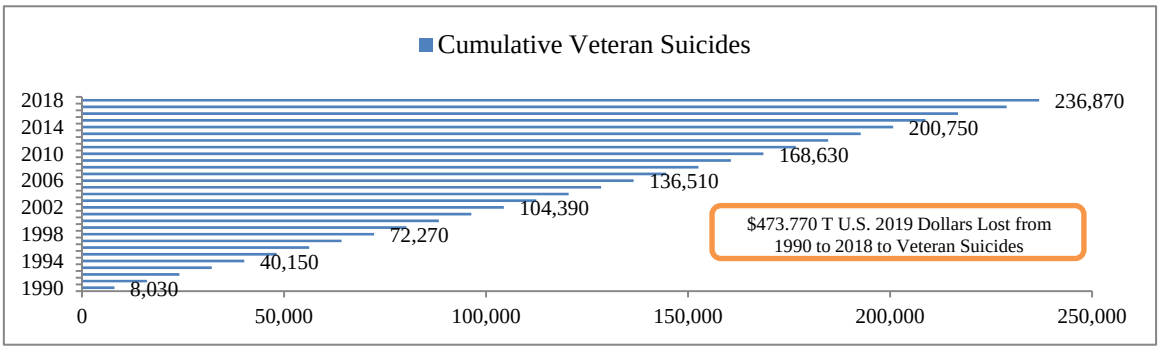

Figure 8. 236,870 Cumulative Veteran Suicides (1990-2018) at $1M Lost Lifetime Wages & $1M Lost Military Training Costs = $473.740 T Loss (Zagar, *et a*l., 2016)

At 22 suicides daily, with 365 days, that is 8,030 veteran deaths yearly. From 1990, when the Desert Storm War in Iraq began, through 2018 as the U.S. continues to fight in Afghanistan, Iraq, Syria and Yemen, the annual 8,030 lost over 30 years, combines to 238,870 veteran suicide deaths. Despite many efforts of this research group to the DOD and VA Suicide Prevention Units, the Secretaries of the Air Force, Army, and Navy, and various generals, this loss continues. Many veterans work in the infrastructure and in public safety, for which this is a significant loss. The military invests at least $1,000,000 in training and salary on each, and there are on average, U.S. worker lifetime earnings of $1,000,000 to consider. This $477,740,000,000 is a loss that is predictable and preventable. To the families and communities, these tragedies are serious matters.

7.5 Sports Organizations: High School, College and Professional and Athletes

The loss in revenue, honor, reputation, sales, endorsements, and the effect of violence in sports on the family, the community, and the social fabric cannot be completely given a cost (Zagar, Zagar, Bartikowski, and Busch, 2009), but in Table 4, it is estimated that there are 3,000 victims with a cost of 55,952,733,308. A case study might be the recent professional, football player, homicide case, Hernandez. During Hernandez's college career in Florida, Tebow tried to intervene in a bar fight. During the pre-employment screening of Hernandez, the New England Patriots administered personality tests (Zagar, Zagar, Busch, Garbarino, Ferrari, *et al*., 2016).

These were consistent with an aggressive, angry and assaulting person, "living on the edge of acceptable behavior." According to Clegg (2013), the football club was cautioned about Hernandez "becoming a problem for the team." Jones (2013) noted that the East Coast professional football club lost $15,037,000 in the signing bonus, and took a major hit to their salary cap with his guaranteed salary. Rishe (2013) believed the loss was closer to $12,700,000.

An inspection of the expense of violence to sports organizations is crucial. Loss of fans, advertising, sales of memorabilia, and endorsements, are challenging issues to quantify, but others are not. In the Hernandez case, a homicide in 2016 dollars costs $4,660,986, while the lost wages of $15,037,000, $20,000 in the average felony trial expense, and 57 years in jail, his life expectancy on a life sentence, at the average prison cost of $27,500 is $1,567,500.

The East Coast team paid $250,000 to buy back Hernandez sports shirts, shredding them. So this adds up to a $19,717,986 loss. The ultimate tragedy is that Hernandez eventually committed suicide in jail. This is a predictable and preventable loss that could have been avoided with MLIT actuarial assessment, followed up with anger management training, cognitive behavior therapy, and medication and mentoring, as already demonstrated in the decade long Chicago teen diversion "Culture of Calm" and "One Summer Chicago" programs.

A series of sports organization examples follows. Michael Vick lost even more dog fighting. First he lost a $130,000,000 contract that was voided. Add the $20,000 average felony trial expense and two years at $27,500 per year average prison cost, this equals $55,000. This totals up to a $130,075,000 loss. Generally, costs to victims comprise out-of-pocket expenses for medical bills, property loss, reduced productivity at work, home, and school, and non-monetary losses (fear, pain, suffering, and lost quality of life).

Of course, the intangible loss of quality of life is often much greater, than the tangible or out-of-pocket expenses. Intangible losses are assigned by jury award, and are not predictable. Economists place monetary values on intangible losses in the following categories: productivity; medical care and ambulance; police and fire services; mental health care; social victim service; and property loss and damage (Miller, Cohen, and Wiersema, 1996). For example, the average pedophilia crime costs $120,681 in 2012 U.S. dollars. On average, a robbery costs $9,752. A fatal crime with assault costs $3,239,964.

These expenses do not include punitive damages, but only the portion of awards meant to compensate the victim's pain, suffering, and lost quality of life. These examples demonstrate how experts quantify costs of violence. Recently, Penn State University paid out $59,700,000 to 26 victims for pedophilia, at an average award of $1.6M to each victim. Jerry Sandusky was a college football coach. The 2016 cost of pedophilia of ten boys is $124,632. This all amounts to a $1,246,320 loss.

He was 67 at the time of his arrest, and earned an average college football coach salary of $53,670 per year for 30 years. The average felony trial expense is $20,000 plus $100,000 bail. He received a sentence of 60 years at $27,500 which equals $16,500,000. There was a payout of $59,700,000 from Penn State University, so this is a total loss of $77,446,320. If one adds the cost of the trials for the former Penn State president and athletic director and their incarceration and the loss in athletic event revenue and reduced alumni donations, this expense increases.

Ohio State may lose $100 million for over 50 victims. Baylor University will lose $223 million over a sex scandal. Michigan State put aside $500,000,000 for 324 sexually abused, college athletes, and many Olympic level competitors. A similar situation exists at University of Southern California, where pedophile victims and expense exist.

Michael Phelps had two driving under the influence arrests (DUIs) at $88,517. This equals $167,034. He lost $50,000,000 in endorsements. The minimum average trial cost of $20,000 adds up to a total of $50,187,034.

O.J. Simpson is another repeat offending, professional football player, with a double murder, assault, robbery and kidnapping. This cost $4,660,986, $4,660, $986, $30,850, $23,687, two felony trials at $20,000 or $40,000, 33 years in jail at $27,500 or $907,500, and a civil judgment of $33,500,000 from the family of homicide victims. This totals up to $43,824,009 in 2016 dollars and salaries.

Tom Payne, a professional basketball player, had multiple rape charges at $124,632. The mean salary for a National Basketball Association player is $24,700,000. A trial costs on average $20,000. The 57 years in jail cost, annually at $27,500, equal to $1,567,500. This adds up to $26,412,132 total cost.

Ubeth Urbina, a professional baseball player, was convicted of attempted murder at $30,850. The trial cost $20,000 and 5 years in prison at $27,500, plus the lost average American Baseball League salary of $17,900,000, which adds up to a $18,057,500 loss.

Rae Carruth, a, married football player, killed his pregnant girlfriend. This is a $4,660,986 expense plus the trial cost of $20,000. He lost a National Football League mean career wage of $6,700,000. He spent 24 years in prison at $27,500, which equals to $660,000. The total loss is $12,040,986.

Oscar Pistorius, the blade runner, killed his wife at $4,660,986. The trial cost $20,000. There was a bail of $112,000 and a 15 year sentence at $27,500, which equals $412,500. He lost a $3,000,000 ad contract. This sums up to $7,093,486.

Mark Rogowski, professional skateboarder, murdered, assaulted and raped at a cost of $4,660,986. The trial cost was $20,000. He lost an average career wage of $1,200,000. He spent 31 years in jail at $27,500 per year equal to $852,500. The total loss is $6,733,486.

Sally McNeil, a wrestler, killed her husband at a cost of $4,660,986. The trial cost of $20,000. She lost an average career wage of $1,200,000. She spent 18 years in prison at $27,500 yearly equal to $495,000. This totals to a $6,375,986 loss.

Mike Tyson, a boxer, was convicted of rape at a cost of $124,632. He spent three years in jail at $27,500 which equals $82,500. He lost $1,000,000 each year in wages, or $3,000,000 total. This adds up to a $3,144,632 loss.

Lee Murray, a boxer, robbed $88,000,000 with a cost of $23,687. He served 25 years in jail. The 25 years in jail at $27,500 equals to $687,500. He lost a $75,600 mean boxing salary, or $1,894,000. This is a total loss of $2,625,187.

Jonathan Koeppenhauer, a boxer, assaulted three times, and attempted to murder at a cost of $30,850 or $94,400. There were four trials at $20,000 cost each which equal to $80,000. He spent two years in jail at $27,500, amounting to $55,000. The total loss in this case is $2,041,400.

Tonya Harding, the ice skater, conspired to assault Nancy Kerrigan at $30,850. She lost the mean lifetime salary of $834,460. There was a $20,000 trial cost. She had a $100,000 fine. The total loss is $985,310.

The total cost to these 16 athletes is $417,423,617. Assuming that sports attendance is the same as church attendance, the lost revenue due to similar criminal activities on ticket sales, and arena revenue for beverages, food and souvenirs over 30 years adding $417,423,617 to the pedophilia scandal costs $55,535,349,691 equal to $55,952,773,308. Imagine the headaches of the sports club owners and athletes' families and the financial heartaches. The total number of college and professional athletes is 465,486 (NCAA, 2018). The professional sports costs may be equal to or greater than those in college athletics.

7.6 U.S. Roman Catholic Nonprofit Religious Expenses

The U.S. Roman Catholic Church has 3,000 active seminarians, 16,000 active permanent deacons, 65,000 nuns and monks, 40,000 active priests, and 7,000 Catholic schools with teachers and youth group volunteers with 100,000 school and parish staff. This is a total of 200,000 employees. Worldwide, some 0.5% to 1.0% of Catholic, and other nonprofit religious clergy, and teachers regardless of age, education, ethnicity, race, or socioeconomic class, were accused of sexual offenses (Zagar, *et al*., 2013). Consequently, of the 200,000 employees, there are 2,000 sex offenders. Some estimates are as high as 6%.

In 2007, the total pedophilia liability payout by the U.S. Roman Catholic Church was $4,520,363,843 and in 2008, $436,000,000. Gallagher Insurance paid out $1,500,000,000 (Wilhelm, 2012; United States Conference of Catholic Bishops, 2014). Given the current rate of 21 bankruptcies since 1994, among 198 dioceses, the projection is that by 2136, all 198 U.S. Roman Catholic dioceses will be bankrupt. See Figure 9. This is why Pope Francis, after seeing a draft of Zagar, et al., 2016, announced all pedophile moving bishops and cardinals will be removed by canonical court

and that from February 21-24, 2019, there will be a historic meeting on "the Protection of Minors in the Church."

There is an estimated 9-14% decline in U.S. Roman Catholic affiliation, due to the pedophilia scandals. The percentage of Catholics in the U.S. population will drop to 0%, in 500 years.

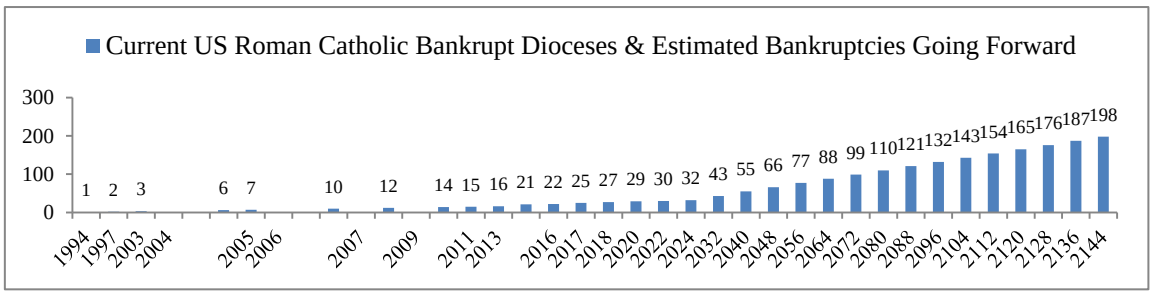

Figure 9. 1994-2016 Projected 198 Bankrupt U.S. Catholic Dioceses From Pedophilia Payouts and Lost Collections (Zagar, *et al*., 2016)

Given each pedophilia-affected zip code per year, estimated U.S. Roman Catholic loss was 1.3% in total charitable contributions. Harvard trained economist, Microsoft postdoctoral fellow, University of California San Diego business professor Perez-Truglia [Rotondaro, 2016] computed this annual lost collections and donation revenue. With 1.3% times 3,000 scandals, the loss is equal to $1,770,000 per year.

Non-itemized contributions are 25% of all giving. Perez-Truglia assumed similar effects on non-itemized givers. A pedophilia scandal costs $590,000,000 per year equal to $1,770,000,000 plus $590,000,000 which equals to $2,366,000,000 per year (Ruhl and Ruhl, 2016). Charitable giving does not bounce back.

Economic effects are localized to the area or diocese. Applying the $2,366,000,000 loss from 2002-2013 equals to 11 years at $2,366,000,000 totaling to $26,026,000,000 loss. Add the $4,520,363,843 cumulative pedophilia settlements. This amounts to a *$30,546,363,843 current loss.* An example of the current situation, the Chicago Archdiocese just sold the parking lot west of Holy Name Cathedral for $100,000,000, a generous price, but the new diocesan chief financial officer notes that there is still a $200,000,000 sex abuse debt. This mitigates the problem, but does not solve it. Probably the cardinal's residence and other properties will need to be sold.

Add future U.S Roman Catholic Church pedophilia settlements by applying 1% to total religious 117,531 using the $1,130,090 per pedophile priest in the past, gives $1,328,985,848 plus future revenue lost/year, from 2014-2023, at $2,366,000 times ten years, equals to $23,660,000,000, plus $1,328,985,848 totaling $24,988,985,848. Past and future loss adds up to $55,535,349,691. This is not a rosy financial picture for the 198 U.S. Roman Catholic dioceses and religious groups.

Most recently, federal prosecutors are treating the 198 U.S. Roman Catholic dioceses and university athletic departments as "criminal enterprises." Just as with the jailed former Penn State University president and athletic director, bishops and cardinals, who received probation in the past, will likely face prison terms like the college officials.

MLIT of 117,531 at $100 costs $11,753,100. We've proposed to the Chicago Archdiocese and the U.S. Roman Catholic Church since 1992 that this objective, reliable, sensitive, specific and valid approach be used with the current ways that miss 69% of the risk. Hopefully given these facts, there will be a change of heart.

7.7 Releasing Nonviolent Offenders to Electronic Monitoring and Other Diversions

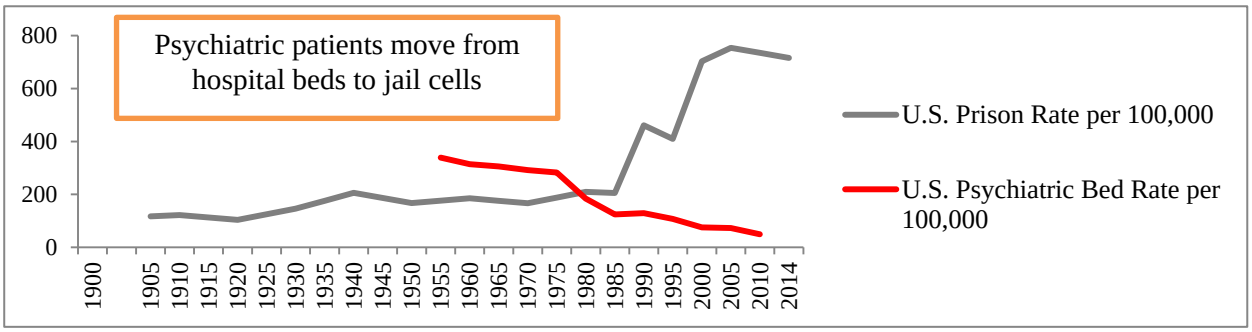

Figure 10. 1095-2015 U.S. Prison Rate vs. Psychiatric Hospital Bed Rate (Zagar, *et al*., 2016)

One third of the annual cost of crime in the U.S. or $37,000,000,000 is the expense of running the U.S. prison system.

Over time, especially since 1960, there was a movement of psychiatric bed patients to jail cell prisoners. See Figure 10. There is a significant ($p < .01$) inverse correlation $r = -0.852$ between psychiatric bed cells and imprisoned offenders (U.S. Bureau Justice Statistics, 2014; Statistical Abstract).

Around 1980, the poor without support migrated from psychiatric beds to jail cells. In Cook County, Chicago, Illinois, the County President released 56% nonviolent offenders to electronic bracelets and other diversions, with no recidivism, or no lowering of community safety (Olson and Taheri, 2012; Zagar, Grove, and Busch, 2013). There is a cost incentive to releasing nonviolent offenders to electronic bracelets or other diversions.

In New York, the annual prison expense is $3,267,105,290. Nonviolent prisoners make up $2,705,422,825 of that cost. From state to state, the return on investment or *ROIs* of moving nonviolent offenders to electronic bracelets and assuring the safety of the community by using MLIT tests to screen these prisoners ranges from $2 to $20. The cumulative savings across 50 states, and the federal prison system, over 28 years, is 30,033,589 offenders or $845,348,791,552.

7.8 Physicians, Health Workers, Teachers, Professors, Counselors, Scout Leaders, Nannies, and Caretakers

There are at least 191,387 at-risk U.S. physicians, health care workers, occupational, physical and speech therapists, social workers, nurses and psychologists, who commit homicide, overdose-substance-abuse, sex-offend, and commit suicide over 28 years (Statista, 2018; KFF, 2018; Midwife, 2018; Speech Language Pathologists, 2018; Physical Therapists, 2018; Occupational Therapists, 2018; American Psychological Association, 2018; Social Workers, 2018). There are many examples of physicians murdering a domestic partner, nurses killing a patient, overwhelmed therapists overdosing, and health care workers molesting patients. In the current news, a nurse impregnated a comatose patient, who gave birth to a child. The total cost of these risks is $19,137,230,000 over 28 years.

7.9 Public Safety, Police, Firefighters, and Emergency Medical Technicians

Annually, one of 154 police officials are accused of inappropriate or illegal, violent behavior. One out of 1,549 deaths is caused by public safety personnel, who acted illegally or inappropriately. Among 1,200,000 public safety officers, there are 200 yearly wrongful injury or death claims.

Since 2004, misconduct legal claims against the Chicago Police Department cost $542,000,000 (Schroeder, 2016) with 450 current outstanding police misconduct lawsuits. Between January 2009 and November 2011, the City of Chicago treasurer paid out $455,000 for 441 lawsuits. This is a rate of $5.54 annually for every Chicago city resident.

In Los Angeles the payout rate for police misconduct was half of Chicago's or $2.66. In New York City was double Chicago's rate or $9.93 [Caputo, 2012]. New York City officials paid out $100,000 yearly, costing $1,000,000,000 in a decade (Fields and Jones, 1999; Fyfe and Kane, 2005).

The combined U.S. annual police suicide and yearly killed-in-the-line-of-duty are 300 (Aamodt and Stainaker, 2006; Badge of Life, 2012; National Law Enforcement Fund, 2015). So, over 30 years that is 7,532 deaths. See Figure 12 for the number of police officers killed and the suicides (Aamodt and Stainaker, 2006; Badge of Life, 2012; National Law Enforcement Fund, 2015).

For every police officer killed or police officer suicide, multiply $1,000,000 for the minimum cost of training and replacing that public safety officer, and a lifetime earnings loss of $1,000,000. So, 7,532 times $2,000,000 is $15,064,000,000 (USA Today, 2018). Unwittingly, academics and the media present newspaper articles promoting more mental health services when in fact MLIT, actuarial assessment would not only lower the suicides, but decrease the illegal violent behavior, the killed-in-the-line-of-duty, and the payouts at a fraction of the cost of the current methods of background-credit checks, interviews-judgment, medical exams, and paper-and-pencil tests.

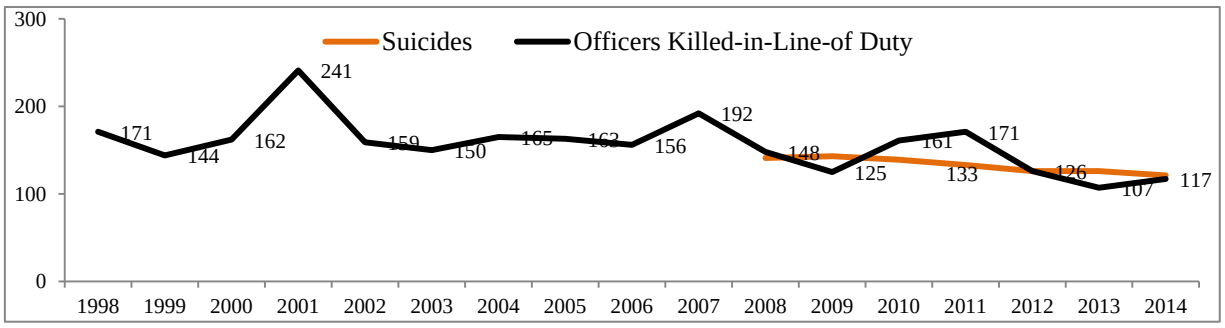

Figure 11. 1998-3013 Annual U.S. Police Officers Suicides & Killed-in-Line-of-Duty (National Law Enforcement Fund (2015)

7.10 Mass Murder and Terrorist Victims Expense

According to the FBI, from 2000 to 2013, there were 160 active shooters. An active shooter is a person killing or attempting to murder people in a confined, populated area. In contrast, mass murders have at least four victims (Blair and Schweit, 2014). Active shooting incidents have the highest casualties. Among 39 incidents, there were 117 deaths; 40% committed suicide and 56-66% had mental illness (Blair and Schweit, 2014). See Figure 12.

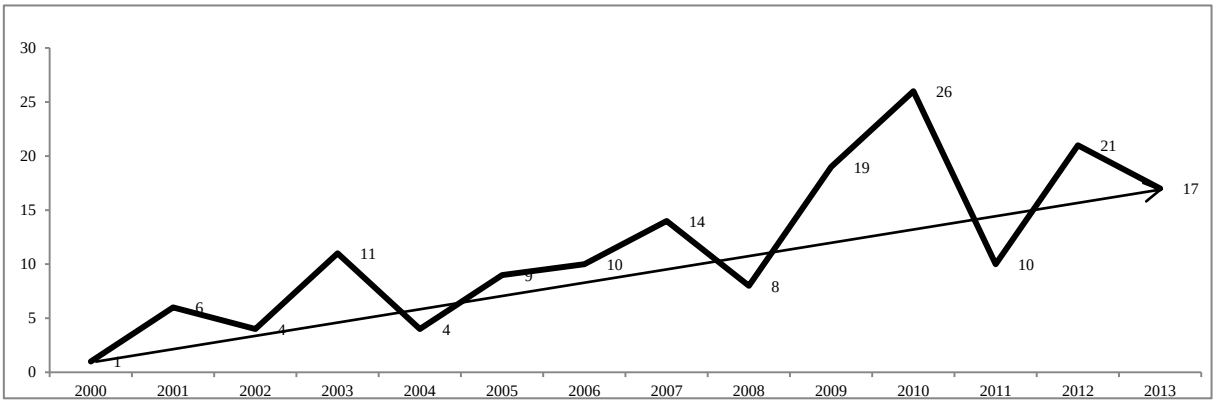

Figure 12. 161 Active Shooter Incidents: 1,046 Dead at $1M; $1,047,000,000 Lifetime Lost Wages (FBI, 2014)

Many think that severely mentally ill people are harmless. Indeed, most are. However, some persons with mental health issues commit mass murders, active shooting incidents, suicides and homicides. Their violent actions are related to personal mental health problems in 20% to 59% of the incidents studied.

In the year following the Sandy Hook Connecticut School massacre, there were 30 mass shootings with 100 victims. In 2013, there were 300 mass murders; 59% of these mass murderers had psychiatric illness.

Over 50 years Hempel, Meloy and Richards (1999) studied 30 mass killings, finding 66% were psychotic in the half century of data examined. From 1949 to 1999, Fessenden (2000) showed 50% of 100 active shooters had serious mental health challenges. Follman, Aronsen, and Pan (2012) discovered 61% of active shooters displayed mental health issues from 1982 to 2012. In summary, from *50-66% of active shooters or an average (M) of 59% had psychiatric illness* (Welch and Hoyer, 2013; FBI, 2014).

7.11 Energy (Coal, Electricity, Gas, Nuclear, Oil, Petroleum, and Solar

4,000 U.S. nuclear power plant controllers supply 20% of the electricity. The probability of a depressed or suicidal controller is ample reason to consider MLIT tests (Bostok and Daley, 2007). In the past, the senior author personally examined a cluster of three completed suicides at a Midwestern nuclear plant.

There are about 600,000 workers involved in the various sectors of energy production (Bromet, Dew, Parkinson, and Schulberg, 1988; U.S. Energy Information Administration, 2009; U.S. Nuclear Regulatory Commission, 2013). There are 474,830 U.S. energy workers, and over 28 years, 25,552 commit homicide, overdose-substance-abuse, sex-offense or suicide, with lifetime earning loss of $1,000,000 or $1,012,000,000 in total loss (Statista, 2018). If one adds the military training expense, since most energy workers are veterans, this loss is doubled.

7.12 Military Homicide and Suicide Costs

Within the military, there were psychiatric, substance-abuse and violence issues. In 2006, after boot camp training, the U. S. Army had a rejection rate of 1,472 of 43,574 recruits. Nineteen percent of these recruits were discharged for unidentified psychiatric issues. One point two percent of U.S. Marines were discharged because of substance-abuse. One percent of enlisted recruits dropped out. Recruitment interviews were consistent with 13.9% soldiers considering suicide, 5.3% with a suicide plan, and 2.4% attempted suicide, with between 47-60% of these cases existing prior to joining the military. See Figure 13.

Often, PTSD issues led to suicide (Davidson, Hughes, Blazer, and George, 1991). In 2006, the joint forces officers had recruits, with an overall accession rate of only 46%, meaning a 54% dropout rate. In 2008, the joint forces, Reserves, and National Guard had 196,000 trainees and 1,450,000 enlisted (U.S. Department of Defense (USDOD), AMSARA, 2009a, 2009b, 2009c).

Costly offenses are perpetrated by military personnel. In 2004, there were 1,798 sexual assault claims, of which 672 resulted in punitive damages (USDOD Sexual Assault Prevention and Response, 2006). Thirty-two percent of enlisted women felt sexually harassed (Bostok and Daley, 2007). This could be explained by the fact that 13% of U.S. Navy

enlisted men had committed sexual assault prior to service (Stander, Merrill, Thomsen, Crouch, and Milner, 2008). There were 506 homicides and suicides in the military (Zagar, *et al*., 2016) over 28 years with a total expense of $1,012,000,000. See Figure 13 for military homicides, mass murders and suicides.

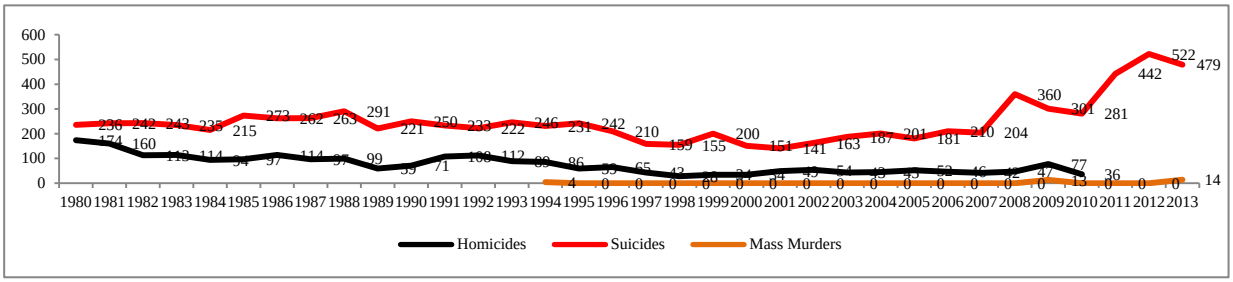

Figure 13. U.S. Department of Defense (DOD) Military 1980-2013 Homicides Suicides and Mass Murders

7.13 Action Plan: Presidential Executive Order and/or Papal Directive Action Plan

So the action plan to begin to save lives and expense on these twelve sectors follows.

7.13.1 Psychiatric Over-Hospitalization

On a practical level, the U.S. President can call and set up a meeting. There would be the CEO and CFO of Blue Cross Blue Shield of Illinois, the neurosurgeon leader of the Department of Housing and Urban Development, the Exelon CEO Northwestern Memorial Hospital Board of Directors, physician head of the Emergency Department, and the Northwestern Memorial Hospital President, who could devise a plan to begin using actuarial MLIT in the emergency room and hospital. Savings are in the hundreds of millions in Illinois alone, and trillions in the U.S.

7.13.2 Civilian Homicides, Overdoses, and Suicides

The U.S. President could offer the Chicago and Illinois insurance executives combined with the political leaders, the Chicago mayor and county president, a grant of $50 to $100 million to start a project that modelled the Obama "Culture of Calm" $78M Department of Justice grant. The focus would be jobs, anger management, and mentoring for adult gang members that are Milted, and then given jobs planting trees for the Park District, repairing potholes for the Department of Transportation, painting infrastructure, or working in the Department of Streets and Sanitation. Chicago's homicide rate would drop.

7.13.3 Air, Bus, Train, and Truck Transport Deaths

The U.S. President could by executive order ask the Federal Aviation Administration to require all pilots, air traffic controllers, flight attendants, airplane mechanics and TSA agents, as part of the medical exam for job entry and promotion, to take MLIT, thereby identifying overdosing-substance-abusing, sex-offending and suicide-completers, before a possible fatality. By doing the same in the Interstate Commerce Commission, the American Truckers Association, the Transportation Department and other federal agencies, the U.S. President could require the same of interstate bus drivers, tank truck operators, especially railroad engineers transporting volatile fluids. Transportation injuries and deaths would decrease dramatically.

7.13.4 Cumulative Daily, Yearly and Decades Long Veteran Suicides

The U.S. President with executive order can direct the Head of the Veterans Administration to require Lovell Hospital at Great Lakes Naval Base in North Chicago Illinois, a conjoint private military, Navy and veterans facility to begin using the MLIT in the emergency room and clinics for veterans reluctant to admit weakness, after serving bravely in wars to identify homicidal, overdosing-substance-abusing, sex-offending, but most importantly suicide-completers. The model from the psychiatric over-hospitalization and military-private-veteran Lovell Hospital could be shared with all U.S. hospitals. A significant decrease in veteran suicides would result.

7.13.5 Professional Collegiate and Olympic Athlete, Coach, and Trainer and Scouting Crimes & Sex-Offending

The U.S. President could call together first a meeting of the National College Athletic Association, then the Olympic Committee, then the professional organizations for baseball, basketball, football, hockey, and soccer to discuss how to safeguard the country, and the profitability of college and professional sports, and their impact on future youth by using MLIT with medical exams, to not only protect the players from themselves, but also the owner's investment. The President could bring in the head of the Boy and Girl Scouts and suggest that they use medical exams and MLIT with all scout leaders. Owners and athletic directors would see payouts decrease and profits rise.

7.13.6 Nonprofit, Religious Groups Pedophilia Payouts and Lost Collections

The U.S. President, working with the Pope, could within a year call a meeting in Chicago. In Chicago, the President could use the hotels and convention halls to bring together the government and business heads to accomplish adding MLIT to current ways. The Pope could promote the use of MLIT with current methods for intake in seminaries and promotion of religious and nonprofit teachers by having a convention at Vincentian DePaul and Jesuit Loyola Universities, who have available campuses and dormitories during the summer. Financial and legal jeopardy would be avoided.

7.13.7 Diverting Nonviolent and/ or Mentally Ill Offenders to Electronic Monitoring Bracelets and Other Diversions

The U.S. President can call a meeting of the county presidents, governors and mayors, and suggest that MLIT be used in cities, counties and states at intake and release of offenders from jail or prison, and demonstrate that nonviolent offenders moved to electronic bracelet monitoring or other diversions, saves valuable taxpayer funds for other needs such as infrastructure, health and education. There would be a significant drop in the Chicago homicide rate.

7.13.8 Health Care Workers, Physicians, Professors, Teachers, and Caretaker Violence

The U.S. President could work with the insurance companies and emergency room department heads of the various hospitals. He could leverage his advantage of increasing profits for both, and work with military and veteran hospitals to give an executive order to screen all health workers in federal government positions by taking MLIT as part of the intake and promotional medical exam.

7.13.9 Public-Safety, Personnel Suicides, Deaths-in- the-Line-of-Duty, & Malfeasance Payouts

The U.S. President may use executive order and find federal grant money to begin first with Chicago and then New York to offer funds to add MLIT to current ways of intake of new police, fire and emergency medical technician cadets, and the promotion of public safety personnel to lower malfeasance, killed in the line of duty, and suicide completion.

7.13.10 Mentally Ill Mass Murderers or Active Shooters

Using presidential suggestion and executive order, MLIT could be used in gun and rifle screening for employees at overseas State Department embassies since the tests are available in many languages. Also, MLIT could be used in screening of immigrants with a criminal or medical history.

7.13.11 Energy Worker (Coal, Electricity, Nuclear, Oil, Petroleum, and Solar Violence

A presidential executive order could focus on the Nuclear Regulatory Commission and Energy Department, to improve safety of workers in various energy sectors.

7.13.12 Military (Including National Guard and Military Academies) Homicides and Suicides

The U.S. President as Commander-in Chief can order the military base in Illinois to start using MLIT in draft and enlistment programs.

7.13.13 Conclusion and Summary

The bottom line is that without leadership, MLIT cannot safeguard communities. There is hope for a safer world and a peaceful next generation, because with probability models, namely actuarial assessments, there is the potential for violence prediction or forecasting because one collects the full information in a MLIT. Amazingly, this is based on nearly a century of data incorporating a few hundred studies, on nearly a third of a million persons, over many continents and countries, where violence was predicted in many independent trials, which give relevant quantified values from which the probability of the future can be predicted in a "7-point violence profile". This is based on limited data from the past, to predict or forecast future violent behavior. Thus, MLIT and professionals who use them, are witnesses for hope of a safer, peaceful world, where families can raise children, who go to school and places of worship, and then find gainful jobs to continue the cycle, peacefully and safely.

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