Assessing and Reducing Violence in Military Veterans

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Polling Question

What percentage of military service members deployed to Iraq and Afghanistan do you think report engaging in violence or aggression toward others in a one year period?

A. <10%
B. 10-20%
C. 20-30%
D. 30-40%
E. >40%

Frequency of Violence in Veterans

- Research indicates aggression toward others is a significant problem reported by up to **one-third** of military service members and veterans (Jakupcak et al., 2007; Killgore et al., 2008; Sayer et al., 2010; Thomas et al., 2010).

- As such, violence toward others appears to be a serious problem for a subset of military veterans.

Frequency of Violence in Veterans

- National random sample survey of all veterans who served in the military since 9/11/01 (Elbogen et al., 2012a).
- **32%** reported incidents of physical aggression to others in a one year period.
- **11%** reported incidents of severe or lethal violence in one year period of time.

Frequency of Violence in Veterans

- A review of violence in military service personnel and veterans in the U.S. and U.K. yielded estimates of 10% for physical assault and 29% for all types of physical aggression in the last month (MacManus et al., 2015).

- Increasing need to improve ability to detect military service members and veterans at highest risk of violence to others.

Violence Risk Assessment

- Many veterans now transitioning into community life, a subset of whom have problems with violence.
- In the past 20 years, much progress in research for assessing risk of violence in civilian populations.
- Below, we apply forensic research to military veterans and outline specific principles for improving violence risk assessment.

Improving Risk Assessment – Rule 1

- To improve risk assessment in practice, it is critical to review risk factors scientifically associated with violent behavior in military populations.

Think about three factors you think place military service members and veterans at higher risk of engaging in physical aggression toward others:

1. _____
2. _____
3. _____

Polling Question

What risk factor do you think is the strongest predictor of violence among military service members and veterans?

A. Younger Age
B. Posttraumatic Stress Disorder (PTSD)
C. Traumatic Brain Injury (TBI)
D. Male Gender
E. Financial Instability

Risk Factors in Military Populations

Risk Domain	Risk Factors for Intimate Partner/ Domestic Violence	Related to Both Types of Violence	Risk Factors for General Interpersonal Violence
Dispositional	Younger age	✓	Younger age
			Lower education level
Historical	Past violent behavior	✓	Past violent behavior
	Combat Exposure (atrocities, perceived threat)	✓	Combat Exposure (killing/seeing killings)
	Chaotic family life growing up		Witnessed violence growing up
	Maltreatment/Abuse as a Child	✓	Abuse/maltreatment as a child

Risk Factors in Military Populations

Risk Domain	Risk Factors for Intimate Partner/ Domestic Violence	Related to Both Types of Violence	Risk Factors for General Interpersonal Violence
Clinical	Meets PTSD criteria	✓	Meets criteria for PTSD
	Severe PTSD Symptoms	✓	Severe PTSD Symptoms
	Substance abuse	✓	Substance abuse
	Depression	✓	Depression
	Personality Disorder		Traumatic Brain Injury
			Higher levels of anger
Contextual	Financial Status (Unemployment)	✓	Financial Status (Lower income)
	Marital/relationship problems		
	Shorter/newer marriages		
	Children in the home		

Improving Risk Assessment – Rule 2

- To improve risk assessment in practice, it is critical to understand the role of PTSD in perpetration of violent behavior in military service members and veterans.

PTSD and Violence in Veterans

- The National Vietnam Veterans Readjustment Study (NVVRS) is one of the first large nationally representative surveys of military veterans.
- The NVVRS found that 33% of male Vietnam Veterans with PTSD reported intimate partner violence (IPV) during the previous year, compared to 13.5% without PTSD. (Kulka et al., 1990)

PTSD and Violence in Veterans

- More recently, a large national cohort sample of UK military personnel (active duty and Veteran) linked clinical data to criminal records (MacManus et al., 2013).
- Among those meeting criteria for PTSD, 7.2% had been arrested for violent offending as compared to 3% in those not meeting criteria for PTSD.

Severe Violence in Next Year

PTSD

Yes = 19.52%

No = 6.41%

Statistically Significant

Elbogen et al., 2014a

Severe Violence in Next Year

Alcohol Misuse

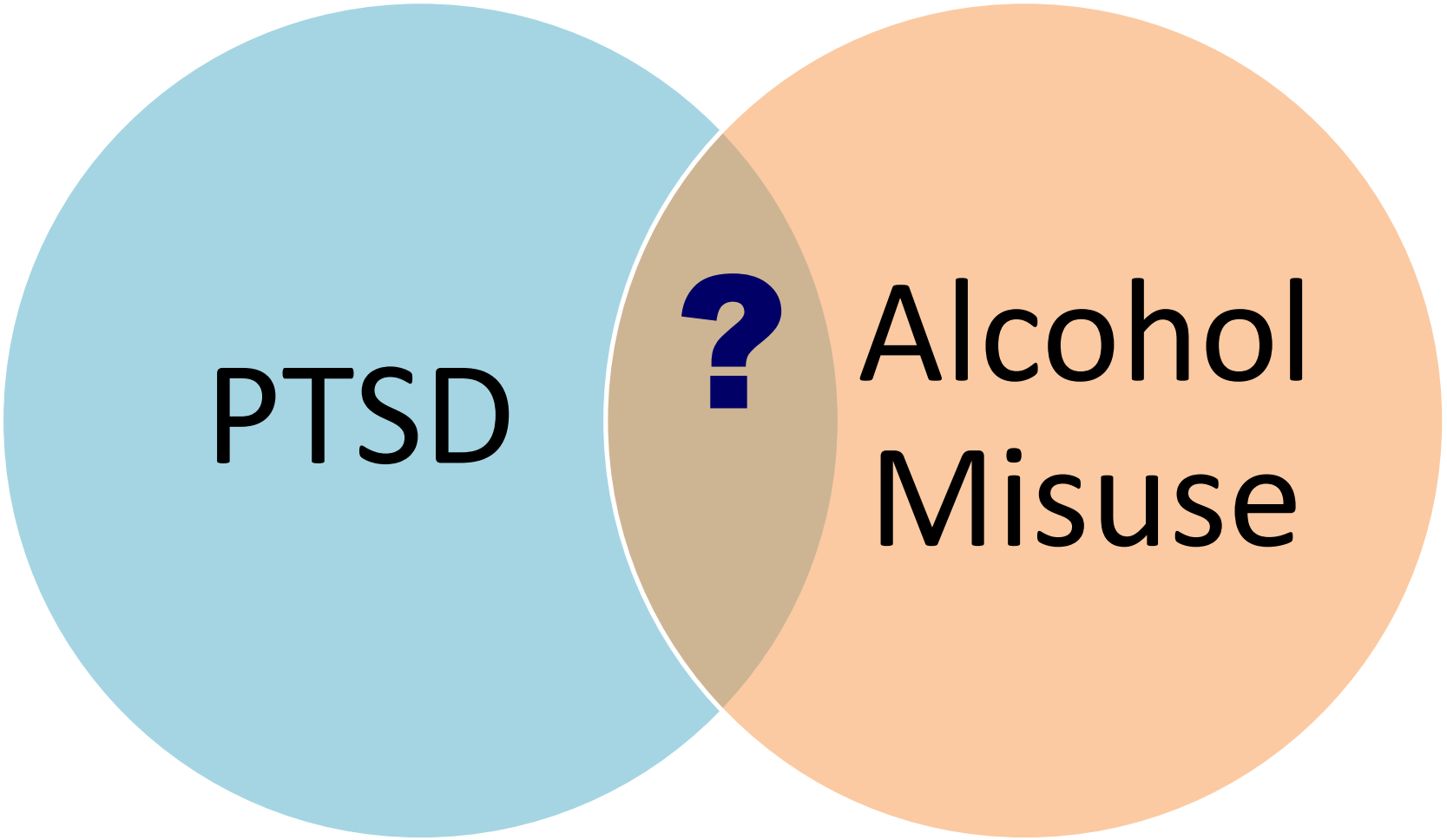
Yes = 17.43%

No = 5.97%

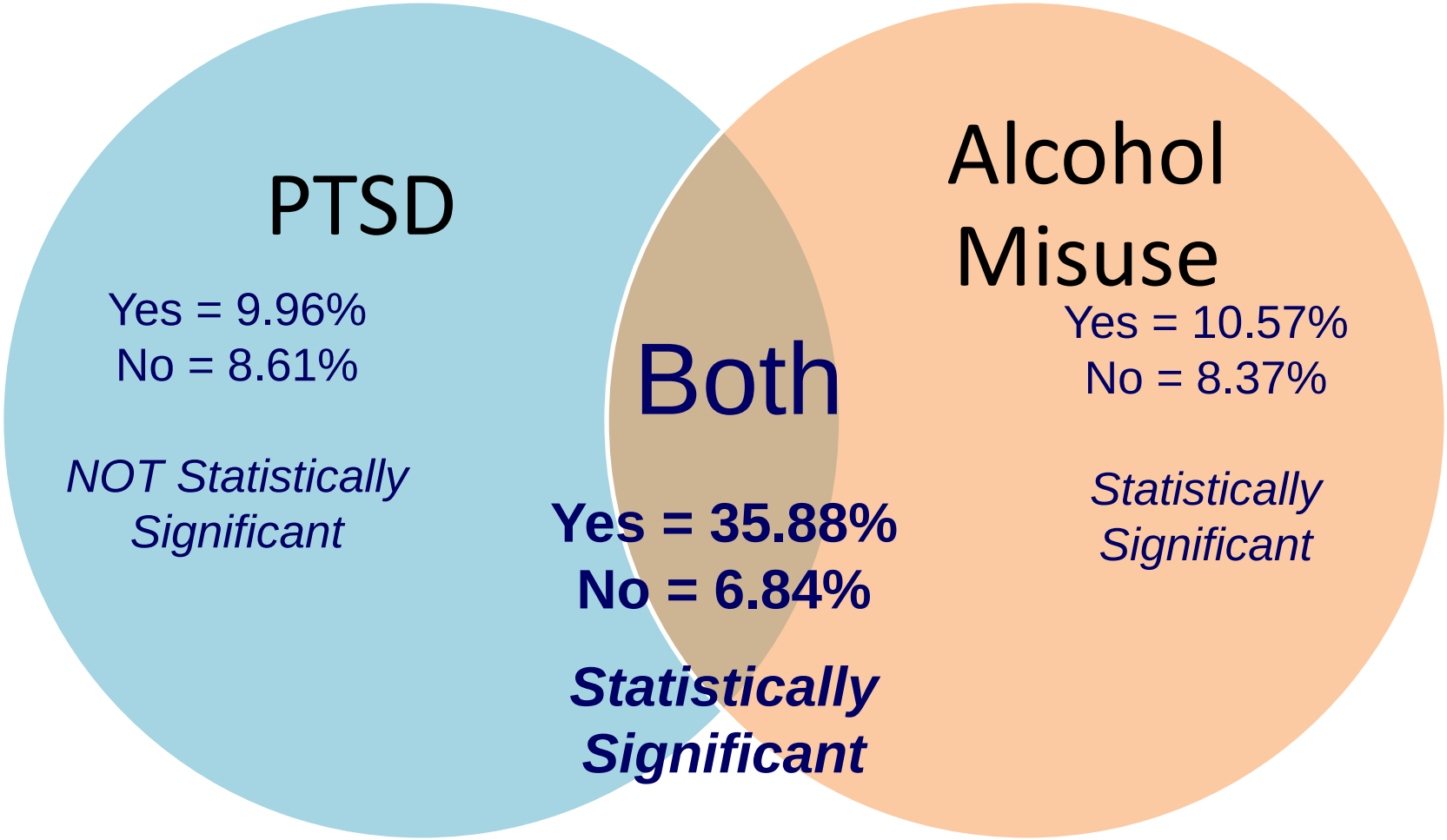
Statistically Significant

Elbogen et al., 2014a

Severe Violence in Next Year



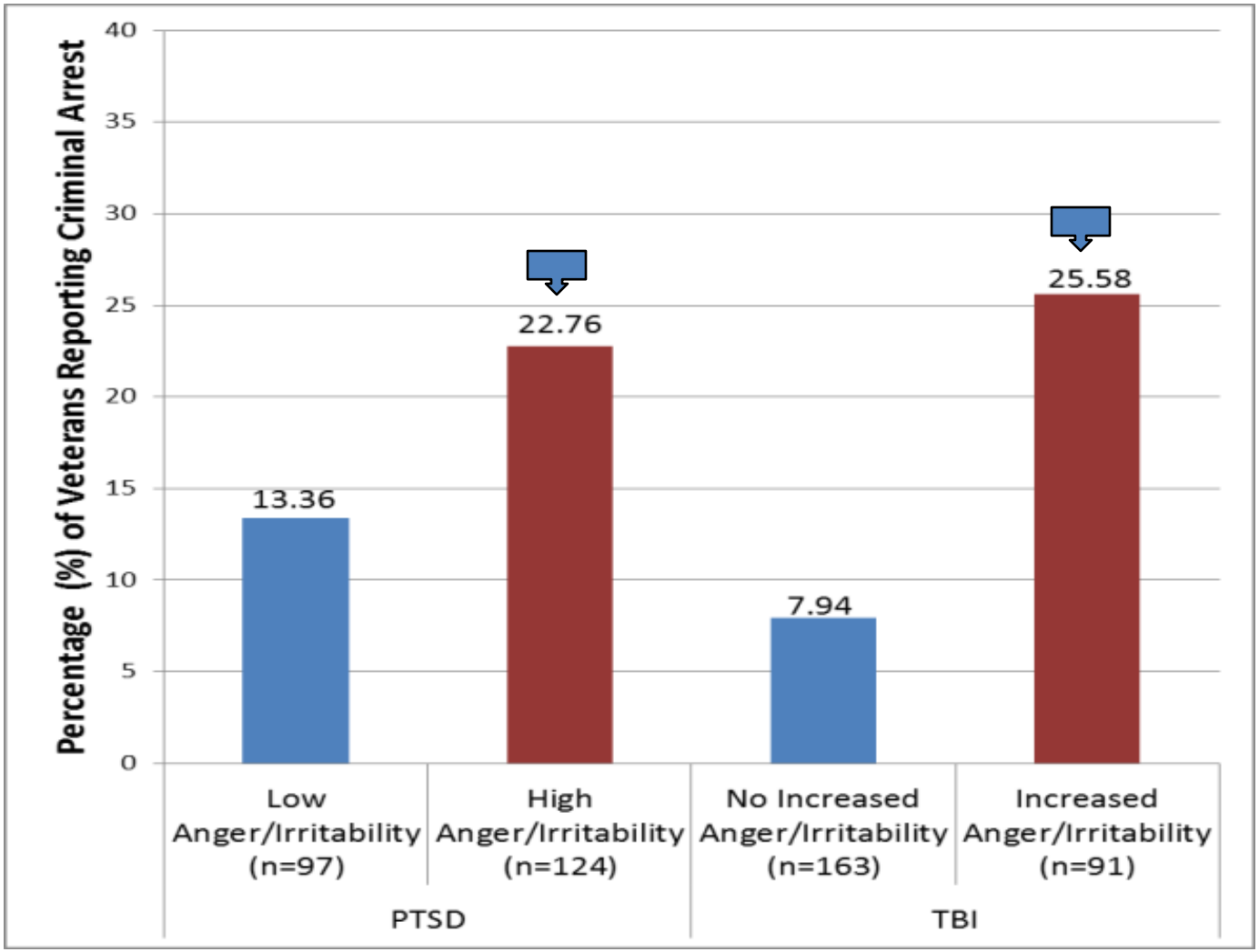
Severe Violence in Next Year



PTSD, Symptoms, and Aggression

- Post-deployment aggressiveness more commonly associated with Posttraumatic Stress Disorder (PTSD) hyperarousal symptoms (Savarese et al., 2001; Taft et al., 2007):
    - sleep problems
    - difficulty concentrating
    - irritability
    - jumpiness
    - being on guard
- Other PTSD symptoms are *less* consistently connected.

PTSD, TBI, & Criminal Justice Involvement In Veterans



Elbogen et al., 2012b

Predictors of Post-Deployment Criminal Arrests

Variable	Odds Ratio	Lower 95% CI	Upper 95% CI	*p*
Male	3.22	1.23	8.42	.0173
Age	0.93	0.90	0.96	<.0001
Witnessed Parents Fighting	4.06	2.12	7.78	<.0001
History of Previous Arrests	2.31	1.36	3.91	.0019
High Combat Exposure	1.24	0.72	2.11	.4372
Substance Misuse	3.37	2.06	5.49	<.0001
Probable TBI low Irritability	0.72	0.36	1.43	.3437
Probable TBI high Irritability	1.70	0.87	3.33	.1207
Probable PTSD low Irritability	1.30	0.62	2.72	.4947
Probable PTSD High Irritability	2.13	1.15	3.95	.0167
	R^2=.27, AUC=.86, $\chi 2$=149.71, df=10, p<.0001			

Elbogen et al, 2012b

Stranger Aggression

Effect of PTSD Symptoms and Covariates on Stranger Aggression

	Stranger Aggression			Severe Stranger Violence		
Variable	***OR***	***95% CI***	***p***	***OR***	***95% CI***	***p***
Older Age (>35)	0.97	[0.94, 0.99]	.0106			ns
Gender[a]	3.41	[1.16, 10.08]	.0264			ns
High Combat	2.47	[1.39, 4.37]	.002	2.58	[1.14, 5.85]	.0234
Substance Misuse	2.52	[1.53, 4.16]	.0003	2.93	[1.45, 5.88]	<.0001
Witnessed Family Violence			ns			ns
History of Arrest			ns			ns
PTSD Anger			ns			ns
PTSD Flashback	1.16	[1.05, 1.28]	.0029	1.26	[1.11, 1.42]	<.0001
PTSD On Guard			ns			ns
PTSD Numb			ns			ns
PTSD Physically Upset			ns			ns

[a] Female = 0, Male = 1

R^2=.17, AUC=.79; χ^2=75.38, df=5, p<.0001

R^2=.20, AUC=.82; χ^2=54.36, df=3, p<.0001

Sullivan, C. & Elbogen, E. B. (2014)

Family Aggression

Effect of PTSD Symptoms and Covariates on Family Aggression

	Family Aggression			Severe Family Violence		
Variable	***OR***	***95% CI***	***p***	***OR***	***95% CI***	***p***
Older Age (>35)	0.98	[0.95, 1.00]	.0221	0.94	[0.89, 0.99]	.0046
Gender[a]			ns	0.36	[0.14, 0.96]	.0347
High Combat			ns	3.96	[1.30-12.02]	.0153
Substance Misuse			ns			ns
Witnessed Family Violence			ns			ns
History of Arrest			ns			ns
PTSD Anger	1.28	[1.19, 1.37]	<.0001	1.30	[1.13, 1.48]	<.0001
PTSD Flashback			ns			ns
PTSD On Guard			ns			ns
PTSD Numb			ns			ns
PTSD Physically Upset			ns			ns
	R^2=.11, AUC=.71; χ^2=53.85, df=2, p<.0001			R^2=.19, AUC=.80; χ^2=41.34, df=4, p<.0001		

[a] Female = 0, Male = 1

Sullivan, C. & Elbogen, E. B. (2014)

Improving Risk Assessment – Rule 3

- To improve risk assessment in practice, it is critical to develop a safety plan that increases protective factors associated with risk of violence in military populations.

Violence & Psychosocial Functioning

Protective Factor	n	Severe Violence n	Severe Violence %	Chi-Square	p-value
Work					
Yes	862	77	8.96	13.43	0.0002
No	239	41	17.25		
Basic Needs Met					
Yes	646	47	7.33	19.29	<.0001
No	455	71	15.65		
Self-Care					
No	114	23	23.14	20.27	<.0001
Yes	988	92	9.34		
Homeless in Past Year					
No	1051	100	9.52	36.87	<.0001
Yes	50	18	36.60		

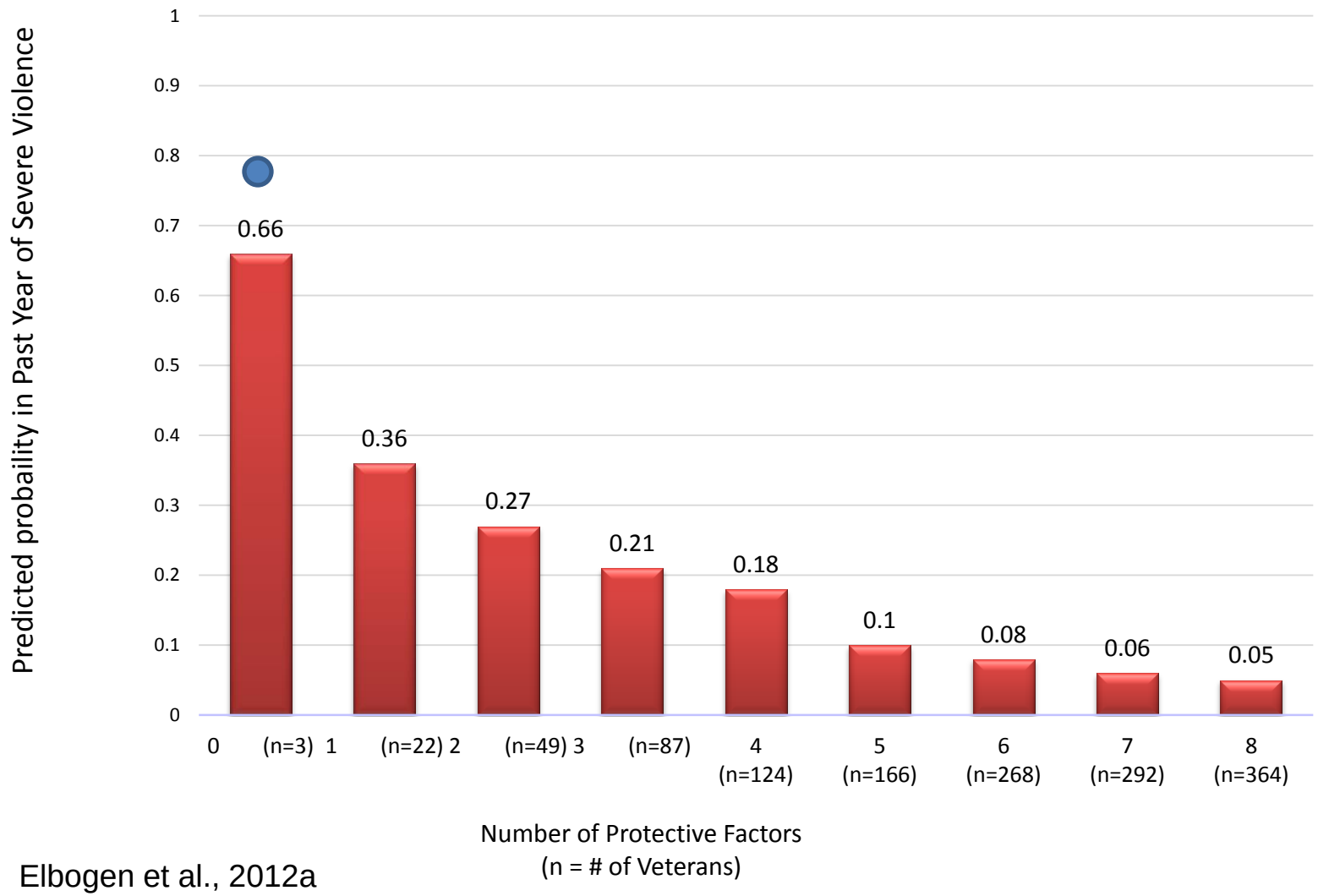
Elbogen et al., 2012a

Violence & Psychosocial Well-Being

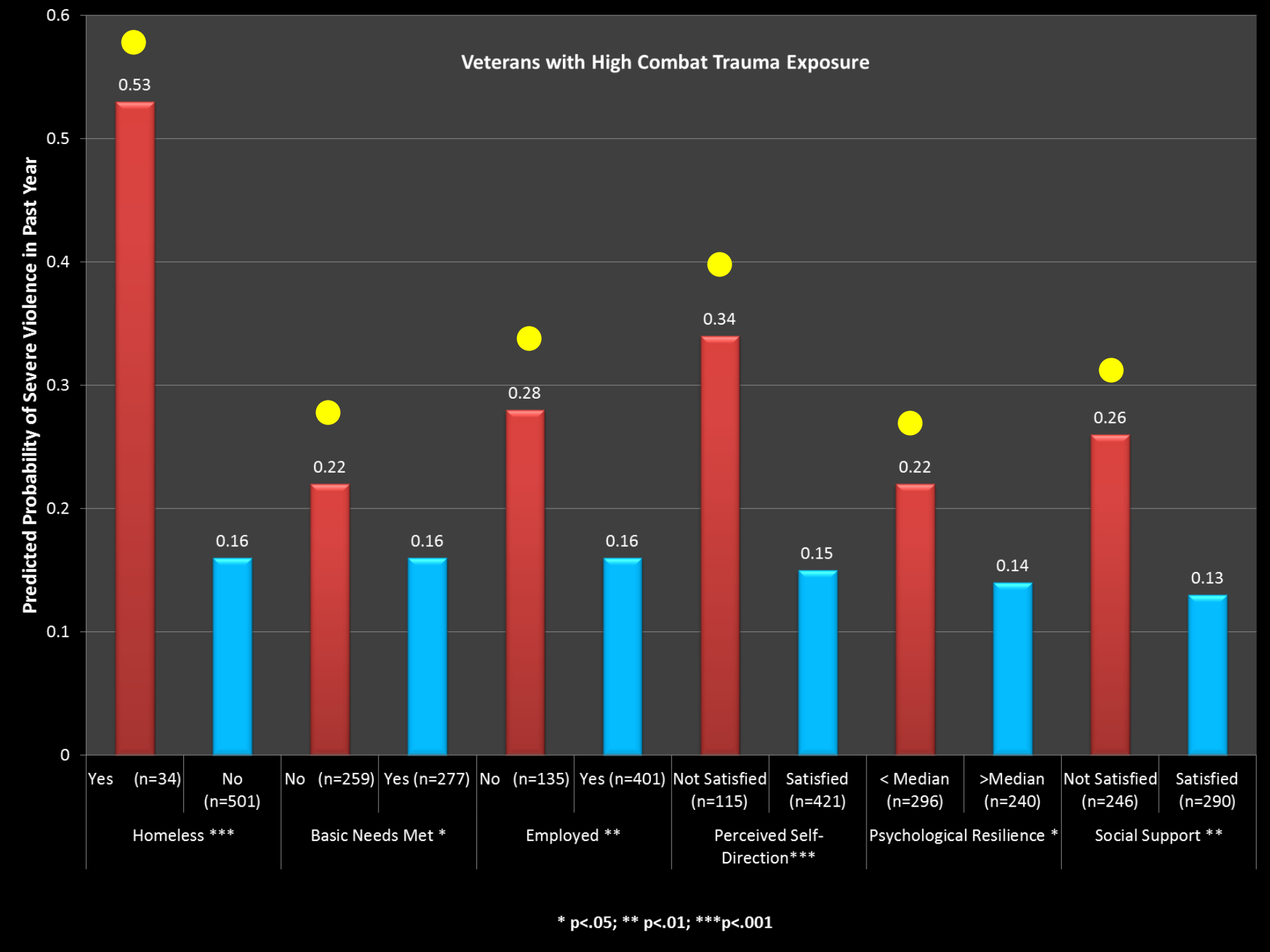
Protective Factor	n	Severe Violence n	Severe Violence %	Chi-Square	p-value
Resilience					
Above Median	562	45	8.10	8.49	0.0036
Below Median	538	73	13.55		
Self-Determination					
Satisfied	926	77	8.33	35.87	<.0001
Not Satisfied	176	42	23.60		
Spiritual Faith					
Satisfied	881	82	9.3	9.97	.0016
Not Satisfied	220	37	16.7		
Social Support					
Satisfied	654	46	7.06	23.04	<.0001
Not Satisfied	447	72	16.19		

Elbogen et al., 2012a

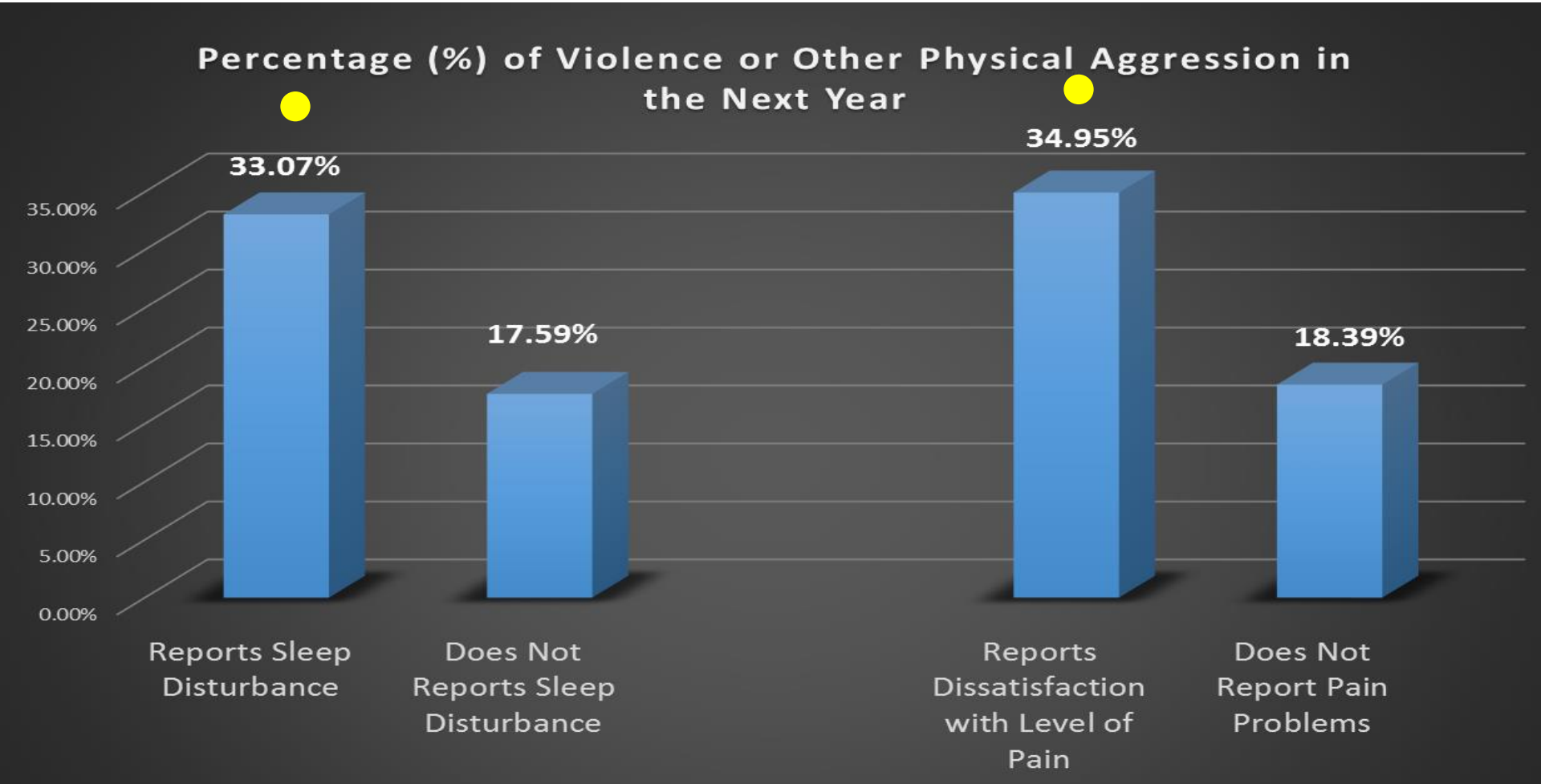
Protective Factors and Reduced Risk of Violence in Military Veterans



Elbogen et al., 2012a


Veterans with High Combat Trauma Exposure
Predicted Probability of Severe Violence in Past Year
0.6
0.5
0.4
0.3
0.2
0.1
0
0.53
0.16
0.22
0.16
0.28
0.16
0.34
0.15
0.22
0.14
0.26
0.13
Yes (n=34)
No (n=501)
No (n=259)
Yes (n=277)
No (n=135)
Yes (n=401)
Not Satisfied (n=115)
Satisfied (n=421)
< Median (n=296)
>Median (n=240)
Not Satisfied (n=246)
Satisfied (n=290)
Homeless ***
Basic Needs Met *
Employed **
Perceived Self-Direction***
Psychological Resilience *
Social Support **
* p<.05; ** p<.01; ***p<.001

Violence and Physical Health



Elbogen et al., 2014b

Improving Risk Assessment – Rule 4

- To improve risk assessment in practice, conduct the evaluation using a structured professional judgement model and apply evidence-based risk assessment tools if available.

Polling Question

When left to their own clinical judgment, how good are mental health professionals at predicting violent behavior?

A. Much worse than chance
B. Slightly worse than chance
C. Same as chance (flipping a coin)
D. Slightly better than chance
E. Much better than chance

Violence Risk Assessment

- Clinicians slightly better than chance at assessing risk of violence (Mossman, 1994).
- To reduce errors and improve risk assessment, clinicians need to make decision-making more systematic, using decision-aides (Monahan & Steadman, 1994; Douglas et al., 1999)
  - To ensure all important information is gathered in the course of diagnosis & treatment.
  - To reduce chances of overlooking critical data in time-pressured clinical practice.

- **Clinical Judgment** – reliance on intuition of a patient's risk of violence
  - shown to be only a little better than chance, prone to decision-making errors.
- **Actuarial Models** – combination of factors to statistically optimize assessment
  - can miss relevant information, limited accuracy for findings pointing to high risk.

- **Structured Professional Judgment** recommended by forensic experts as the optimal way to assess for violence risk:
  - Systematic approach to reduce clinical decision-making errors.
  - Prompts review of risk and protective factors with scientific and empirical support.
  - Points to dynamic and changeable factors that can inform interventions to reduce violence.

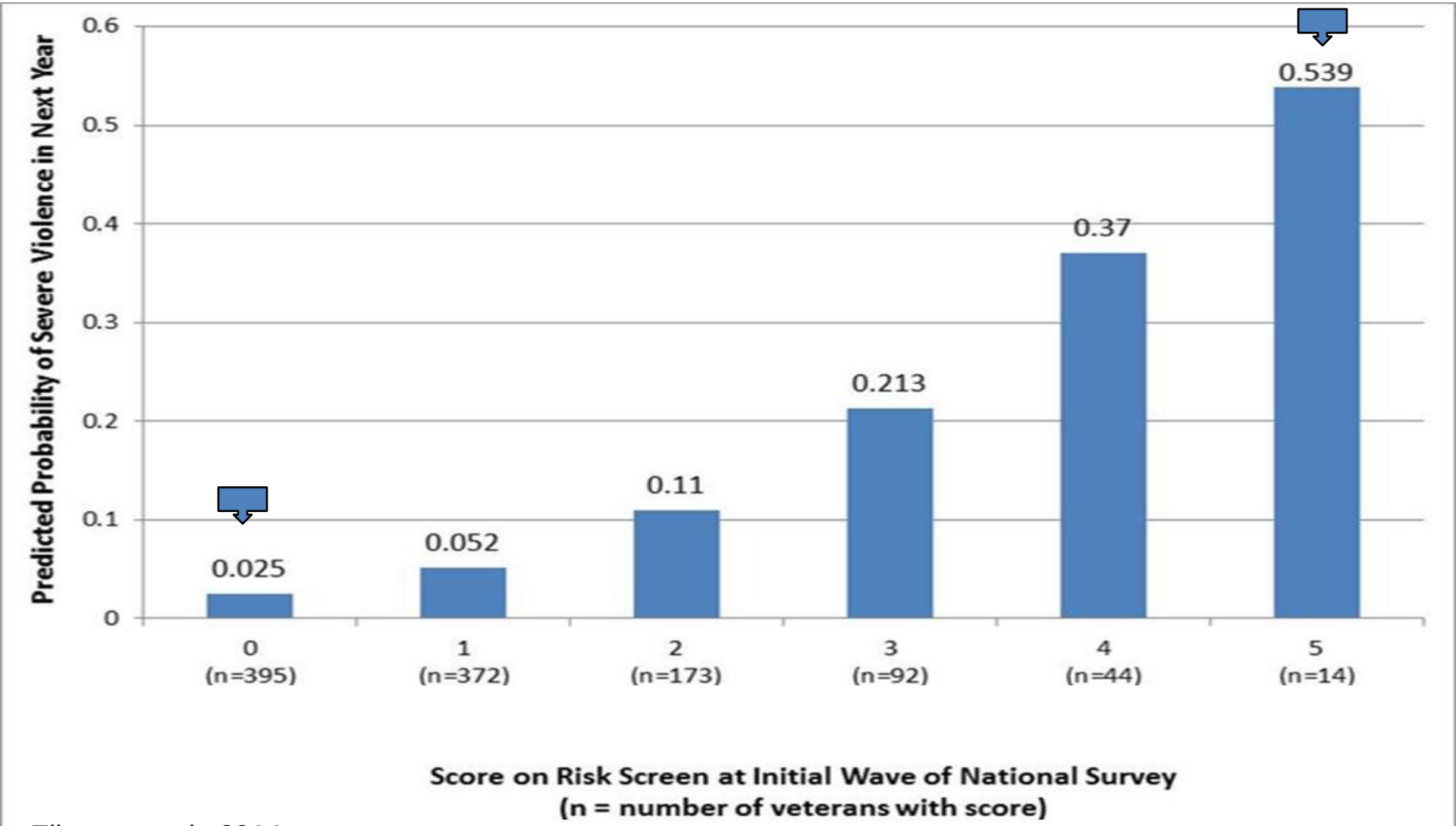
Violence Risk Assessment

Flipping a Coin	-> AUC=.50
Clinical Decision-making	-> AUC=.66
History of Violence	-> AUC=.71
Psychopathy Checklist	-> AUC=.75
Violence Risk Appraisal Guide	-> AUC=.76
HCR-20	-> AUC=.80
MacArthur Risk Assessment Study	-> AUC=.82
Perfect Accuracy	-> AUC=1.0

Violence Screening & Assessment of Needs (VIO-SCAN)

Domain	Item	Response
Financial Instability	Do you generally have enough money each month to cover the following? Food, Clothing, Housing, Medical care, Transportation, Social activities	Yes No
Combat Experience	Did you personally witness someone (from your unit, an ally unit, or enemy troops) being seriously wounded or killed?	Yes No
Alcohol Misuse	Has a relative or friend, or a doctor or other health worker, been concerned about your drinking [alcohol] or suggested you cut down?	Yes No
History of Violence / Arrests	Have you ever been violent toward others* or arrested for a crime?	Yes No
PTSD + Anger	In the past week, how many times have you been irritable or had outbursts of anger?	≥ 4 times + PTSD Other

Violence Screening & Assessment of Needs (VIO-SCAN) for Veterans (AUC=.74-.80)



Elbogen et al., 2014c

What the VIO-SCAN can do?

1) prompt clinicians to consider at least five empirically supported risk factors;
2) identify veterans who may be at high risk of violence;
3) prioritize referrals for a comprehensive violence risk assessment; and
4) review needs and dynamic, protective factors to develop a plan to reduce risk.

What the VIO-SCAN can't do?

- The VIO-SCAN does not:
  - replace comprehensive risk assessment.
  - designate whether a veteran is at low, medium, or high risk.
  - does not have perfect accuracy, so false negatives and false positives will occur.
- High scores will not always mean high risk of violence, and low scores do not always mean low risk of violence.

Recap: A Subset of Military Veterans Report Violence

- Findings reveal a subgroup of military service members and veterans who report recent serious violence such as use of a weapon or beating another person (11%) in a one-year time frame.

- In the same period, a higher number report less severe physically aggressive incidents such as shoving or pushing others (32%).

Recap: Link between PTSD and Violence in Veterans is Complex

- Most veterans with PTSD reported no violence or problems with aggression.
- PTSD and combat exposure were associated with a higher rate of violence.
- Veterans with PTSD who did not misuse alcohol were 72% less likely to report severe violence in the next year than veterans with PTSD who misused alcohol.
- Specific PTSD symptoms also accounted for increased risk of violence.

Recap: Non-PTSD Risk Factors Need to be Considered

- Risk factors related to violence and aggression in military service members, just like in civilian populations:
  - Criminality (e.g., history of arrest before military service)
  - Economic and social attainment (e.g., not having money to meet basic needs)
  - Demographics (e.g., younger age)

Recap: Protective Factors can be Targeted to Manage Risk

- Protective factors found to be associated with reduced violence in service members.
- In addition to treating mental health and substance abuse problems, promising rehabilitation approaches to reduce violence risk would target domains of:
  - basic functioning (living, financial, vocational)
  - well-being (social, psychological, physical)

References

Douglas, K. S., Cox, D. N., & Webster, C. D. (1999). Violence risk assessment: Science and practice. Legal and Criminological Psychology, 4, 149-184.

Elbogen, E. B., Johnson, S. C., Wagner, H. R., Newton, V.M., Timko, C., Vasterling, J. J.,& Beckham, J. C. (2012a). Protective Factors and Risk Modification of Violence in Iraq and Afghanistan War Veterans. Journal of Clinical Psychiatry, 73, e767-e773.

Elbogen, E. B., Johnson, S.C., Newton, V. M., Straits-Troster, K., Vasterling, J. J., Wagner, H. R., & Beckham, J. C. (2012b). Criminal Justice Involvement, Trauma, and Negative Affect in Iraq and Afghanistan War Era Veterans. Journal of Consulting and Clinical Psychology, 80, 1097-1102.

Elbogen, E. B., Johnson, S.C., Wagner, R.H., Sullivan, C., Taft, C., & Beckham, J. C. (2014a). Violent Behaviour and Posttraumatic Stress Disorder in US Iraq and Afghanistan Veterans. British Journal of Psychiatry, 204, 368-75.

Elbogen, E.B., Johnson, S.C., Newton, V., Timko, C., Vasterling, J.J., Van Male, L., Wagner, H.R., & Beckham, J. C. (2014b). Protective Mechanisms and Prevention of Violence and Aggression in Veterans. Psychological Services, 11, 220-8.

Elbogen, E. B., Cueva, M., Wagner, R.H., Sreenivasan, S., Brancu, M., Beckham, J. C., & Van Male, L., (2014c). Screening for Violence Risk in Military Veterans: Predictive Validity of a Brief Clinical Tool. American Journal of Psychiatry, 171, 749-757.

Institute of Medicine. (2010). Returning home from Iraq and Afghanistan: Preliminary assessment of readjustment needs of veterans, service members, and their families. Washington, DC: The National Academies Press.

Jakupcak, M., Conybeare, D., Phelps, L., Hunt, S., Holmes, H. A., Felker, B., . . . McFall, M. E. (2007). Anger, hostility, and aggression among Iraq and Afghanistan war veterans reporting PTSD and subthreshold PTSD. Journal of Traumatic Stress, 20(6), 945-954.

Killgore, W. D. S., Cotting, D. I., Thomas, J. L., Cox, A. L., McGurk, D., Vo, A. H., . . . Hoge, C. W. (2008). Post-combat invincibility: Violent combat experiences are associated with increased risk-taking propensity following deployment. Journal of Psychiatric Research, 42(13), 1112-1121.

Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). Trauma and the Vietnam War generation: Report of findings from the National Vietnam Veterans Readjustment Study. New York: Brunner/Mazel.

References

MacManus, D., Dean, K., Jones, M., Rona, R. J., Greenberg, N., Hull, L., . . . Fear, N. T. (2013). Violent offending by UK military personnel deployed to Iraq and Afghanistan: A data linkage cohort study. The Lancet, 381(9870), 907-917. doi: 10.1016/S0140-6736(13)60354-2

MacManus, D., Rona, R., Dickson, H., Somaini, G., Fear, N., & Wessely, S. (2015). Aggressive and violent behavior among military personnel deployed to Iraq and Afghanistan: prevalence and link with deployment and combat exposure. Epidemiologic reviews, 37(1), 196-212.

Monahan, J., & Steadman, H. J. (1994). Violence and mental disorder: Developments in risk assessment: (1994). x, 324 pp. Chicago, IL, US: University of Chicago Press.

Mossman, D. (1994). Assessing predictions of violence: Being accurate about accuracy. Journal of Consulting and Clinical Psychology, 62(4), 783-792.

Savarese, V. W., Suvak, M. K., King, L. A., & King, D. W. (2001). Relationships among alcohol use, hyperarousal, and marital abuse and violence in Vietnam veterans. Journal of Traumatic Stress, 14(4), 717-732.

Sayer, N. A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., & Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA medical care. Psychiatric Services, 61(6), 589-597.

Sullivan, C. & Elbogen, E. B. (2014) PTSD Symptoms and Family versus Stranger Violence in Iraq and Afghanistan Veterans. Law and Human Behavior, 38, 1-9.

Taft, C. T., Kaloupek, D. G., Schumm, J. A., Marshall, A. D., Panuzio, J., King, D. W., & Keane, T. M. (2007). Posttraumatic stress disorder symptoms, physiological reactivity, alcohol problems, and aggression among military veterans. Journal of Abnormal Psychology, 116(3), 498-507.

Thomas, J. L., Wilk, J. E., Riviere, L. A., McGurk, D., Castro, C. A., & Hoge, C. W. (2010). Prevalence of mental health problems and functional impairment among Active Component and National Guard soldiers 3 and 12 months following combat in Iraq. Archives of General Psychiatry, 67(6), 614-623.

United States Bureau of Justice Statistics. (2007). Veterans in State and Federal Prison, 2004. Washington, DC: United States Department of Justice.

Questions?

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