

Combat exposure & suicidality

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Combat & fearlessness of death

- Combat is associated with less fear of death, especially combat marked by high levels of **violence** (Bryan & Cukrowicz, 2011; Bryan, Cukrowicz, West, & Morrow, 2010)
- Combat has been proposed to increase risk for suicide through habituation to pain and fear of **death** (Anestis et al., 2009; Joiner, 2005; Selby et al., 2010; Van Orden et al., 2010)

Civilian PTSD & suicide risk

- Linear relationship among PTSD, suicidal ideation, suicide attempts, suicide deaths (Gradus et al., 2010; Marshall et al., 2001; Oquendo et al., 2003)
 - Risk is especially pronounced with comorbid depression

Combat PTSD & suicide risk

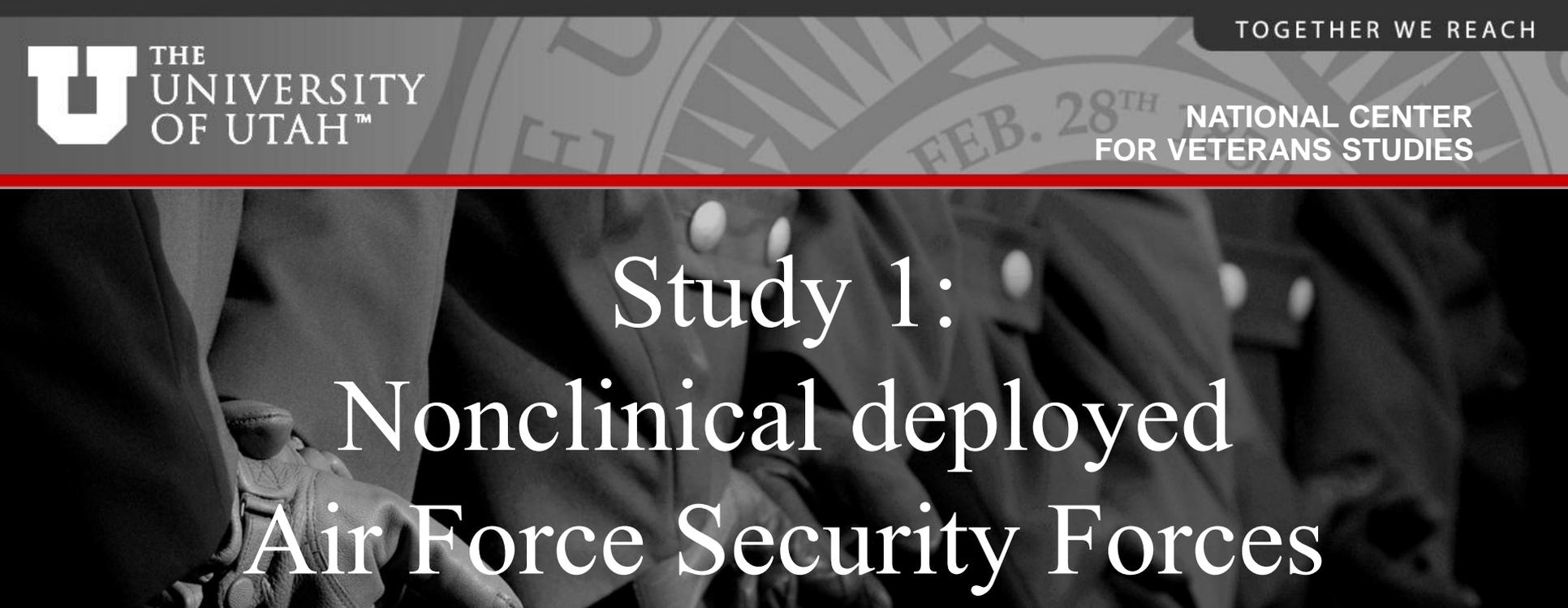
- Combat vets with PTSD have higher rates of suicidal ideation, attempts, and suicide deaths than vets without PTSD (Boscarino, 2006; Butterfield et al., 2005; Drescher et al., 2003; Farberow, Kang, & Bullman, 1990; Freeman, Roca, & Moore, 2000; Krammer et al., 1994; Nad et al., 2008)
 - Rates increase with comorbid depression (Clemans et al., 2012; Lehmann, McCormick, & McCracken, 1995; Rudd, Goulding, & Bryan, 2011; Waller, Lyons, & Constantini-Ferrando, 1999)

Combat & suicide risk

- Direct link between combat exposure and suicide risk has generally not been explicitly tested or supported
- Witnessing atrocities during combat more strongly associated with psychopathology and suicidal ideation than combat actions (Sareen et al., 2007)

Primary aims

- To explore the direct and indirect relationships of combat with suicide risk



Study 1: Nonclinical deployed Air Force Security Forces

Participants

- 348 active duty USAF Security Forces
 - 100% USAF
- Gender: 312 male, 36 female
- Age: $M = 24.50$, $SD = 4.84$
- Race: 63.5% Cauc; 14.4% African-Amer.; 12.1% Hisp / Latino; 3.4% Asian/Pac Isl; 5.2% “Other”; 1.4% unknown
- 52.3% had deployed at least once previously

Procedures

- Participants completed standardized assessment packet as part of baseline neuropsychological testing during first two weeks of deployment
- Study approved by Brook Army Medical Center IRB

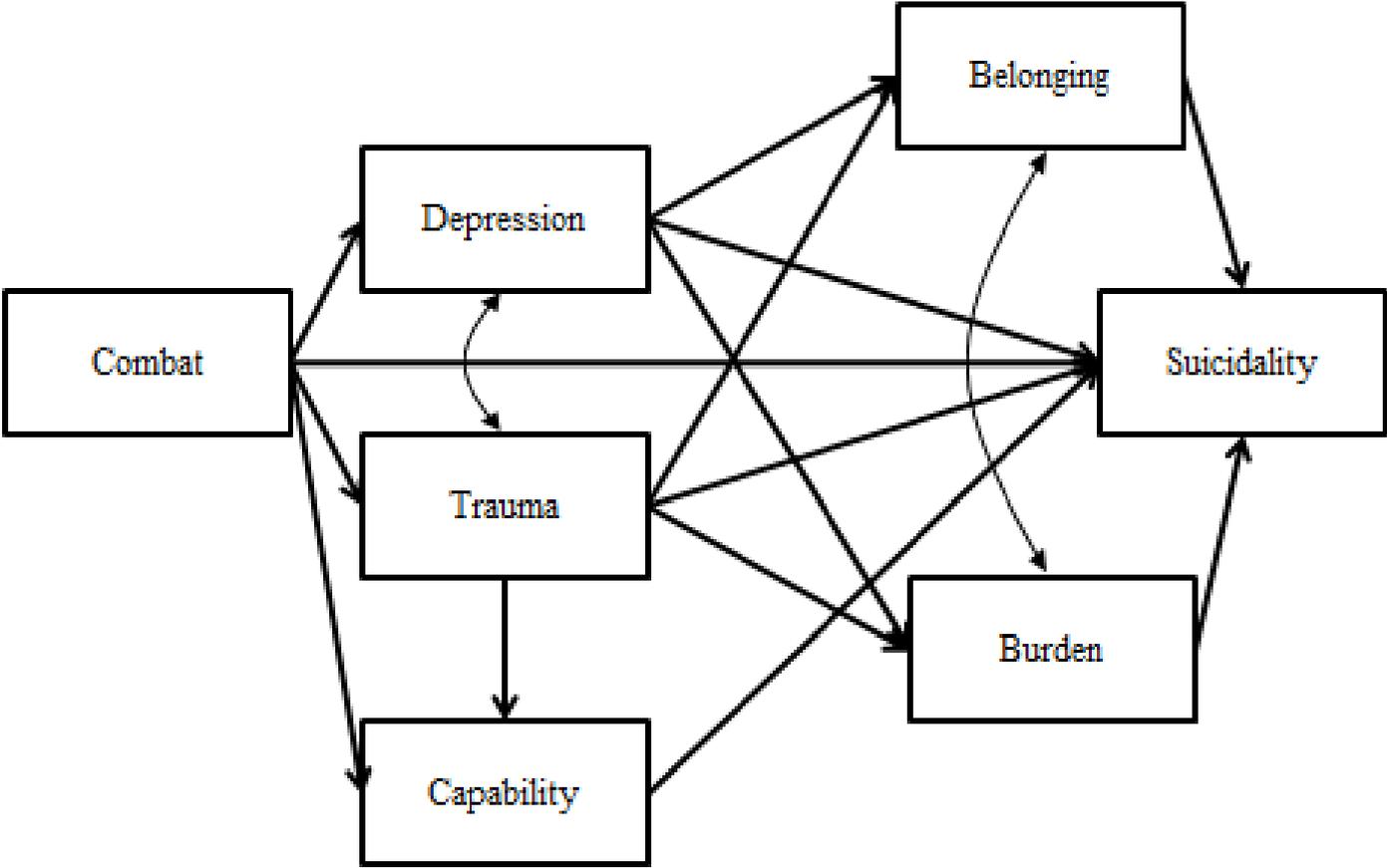
Measures

Construct	Measure
Combat	Combat Exposure Scale
PTSD symptoms	PTSD Checklist Military Version
Depression symptoms	Behavioral Health Measure depression subscale
Belongingness	Interpersonal Needs Questionnaire thwarted belongingness subscale
Perceived burdensomeness	Interpersonal Needs Questionnaire perceived burdensomeness subscale
Fearlessness of death	Acquired Capability for Suicide Scale
Suicide risk	Suicidal Behaviors Questionnaire Revised

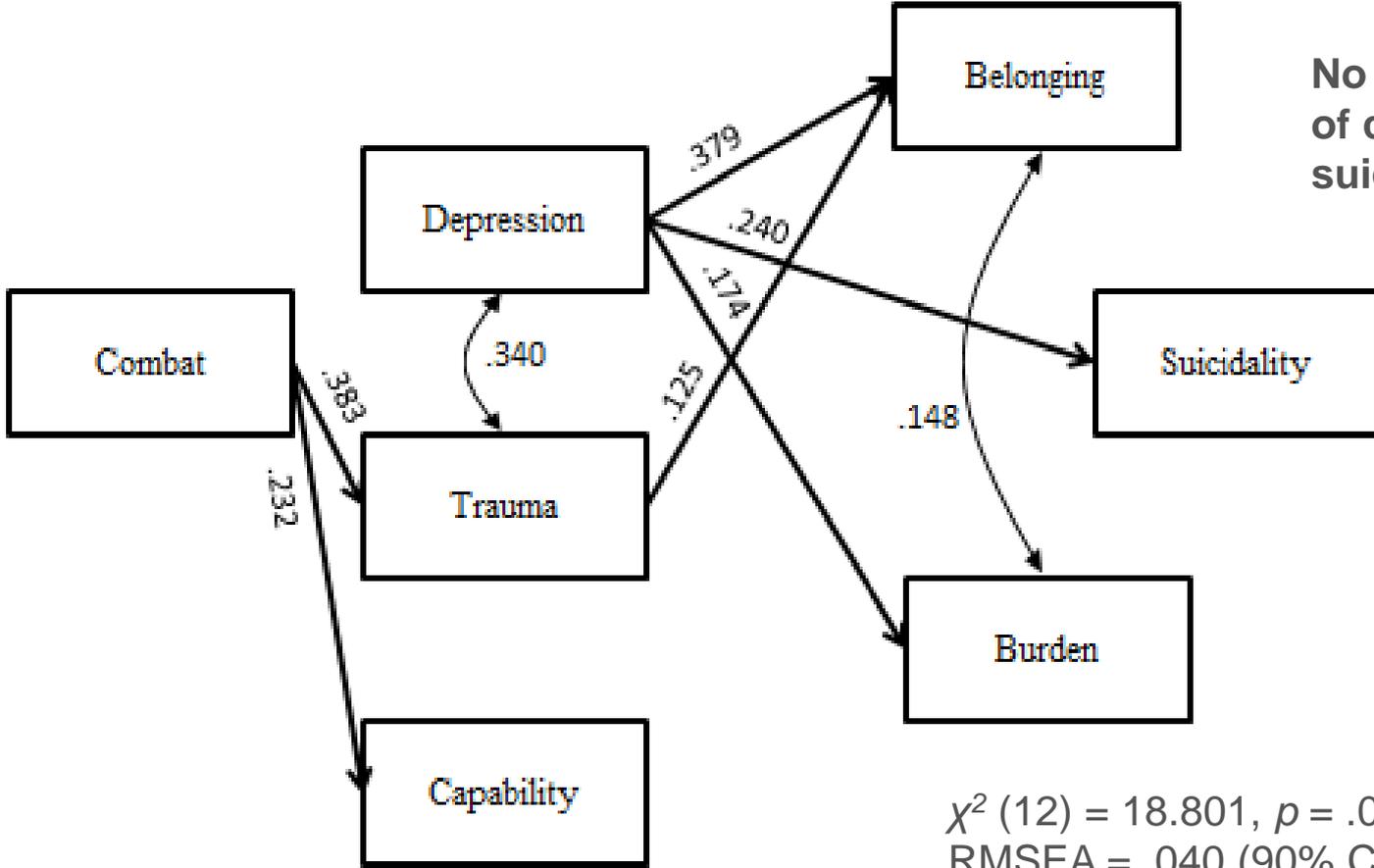
Data analytic approach

- Structural equation modeling with maximum likelihood estimation
- Indicators of “good fit”:
 - Nonsignificant chi-square, $CFI > .90$, $RMSEA < .10$, $SRMSR < .08$

Initial model



Final model

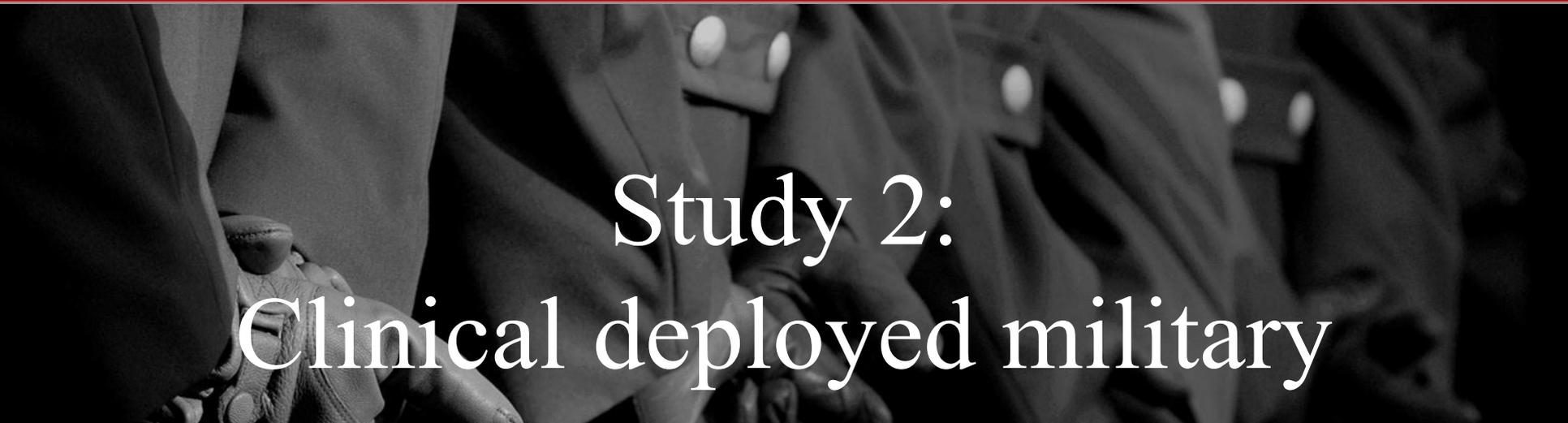


No direct or indirect effect of combat exposure on suicidality:

$B_{direct} = -.046, SE = .058, p = .424$

$B_{indirect} = .000, SE = .029, p = .989$

$\chi^2 (12) = 18.801, p = .093; SRMSR = .044; RMSEA = .040 (90\% CI: .000-.074); CFI = .971$



Study 2: Clinical deployed military

Participants

- 219 military personnel presenting for treatment
 - 61.6% Army, 32.0% USAF, 3.7% USMC, .5% USN, 2.3% civ
- Gender: 201 male, 18 female
- Age: $M = 27.88$, $SD = 7.49$
- Race: 72.1% Cauc; 14.2% African-Amer; 8.2% Hisp / Latino; 2.7% Asian/Pac Isl; .5% “Other”; 2.3% unknown
- 49.3% had deployed at least once

Procedures

- Participants completed standardized assessment packet as part of intake paperwork
- Study approved by Brook Army Medical Center IRB

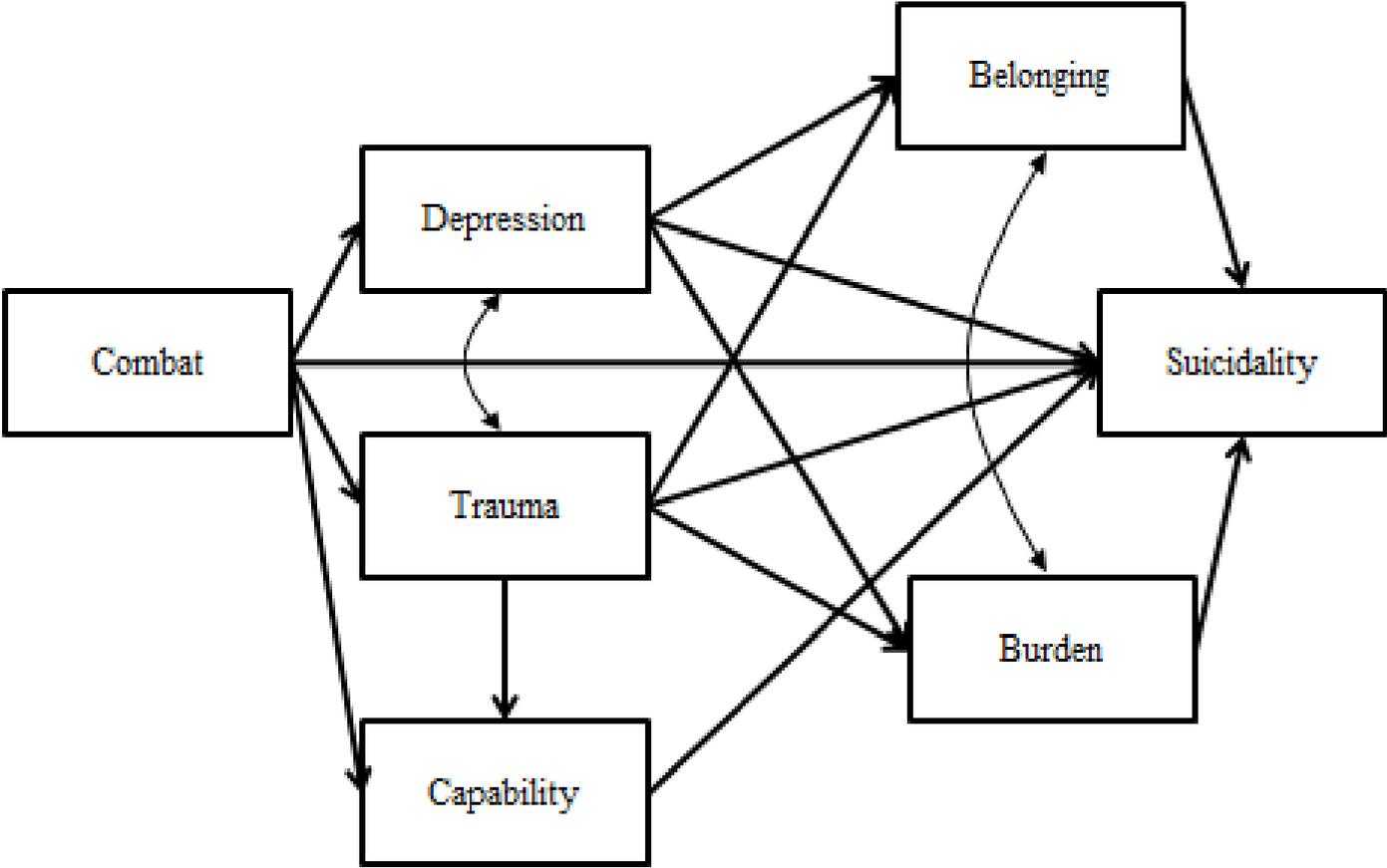
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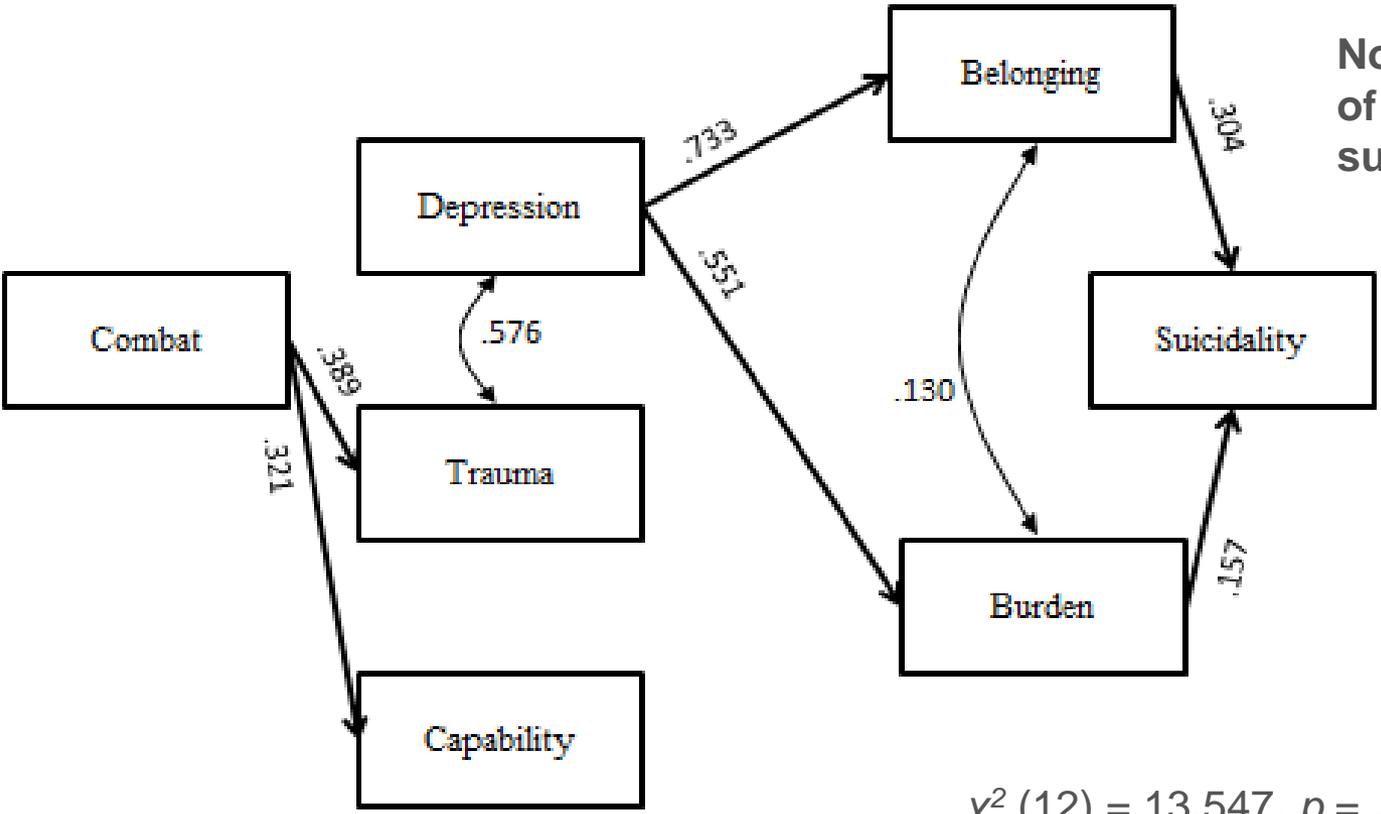
Data analytic approach

- Structural equation modeling with maximum likelihood estimation
- Indicators of “good fit”:
 - Nonsignificant chi-square, $CFI > .90$, $RMSEA < .10$, $SRMSR < .08$

Initial model



Final model

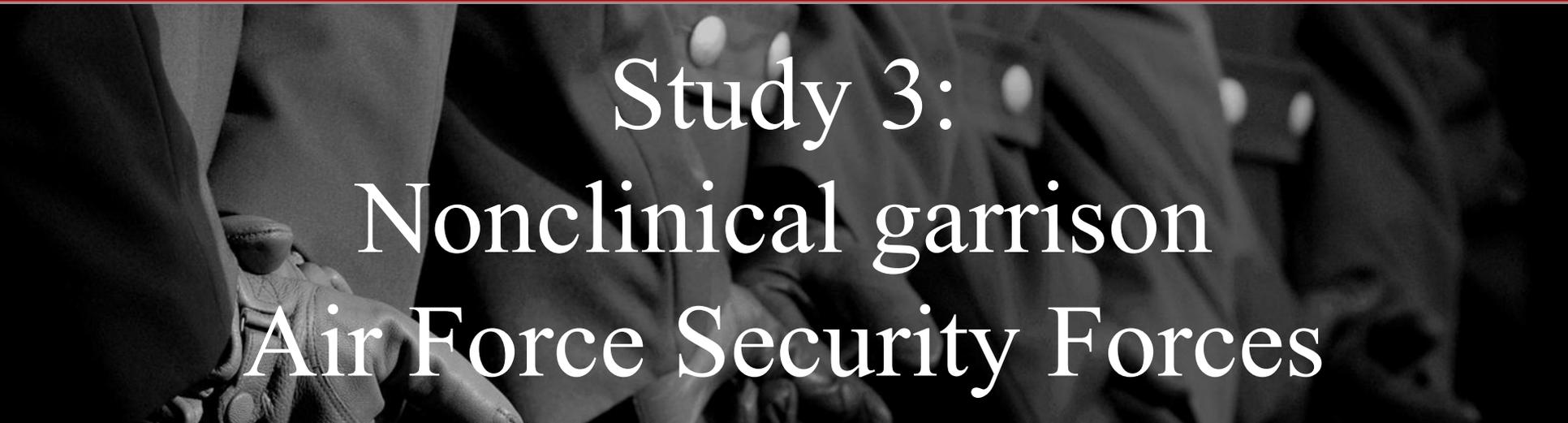


No direct or indirect effect of combat exposure on suicidality:

$B_{direct} = .029, SE = .017, p = .149$

$B_{indirect} = .003, SE = .010, p = .787$

$\chi^2 (12) = 13.547, p = .331; SRMSR = .031; RMSEA = .024 (90\% CI: .000-.075); CFI = .997$



Study 3:
Nonclinical garrison
Air Force Security Forces

Participants

- 189 active duty USAF Security Forces
 - 100% USAF
- 150 male, 39 female
- Age: $M = 25.96$, $SD = 5.92$
- Race: 59.8% Cauc; 23.3% African-Amer.; 2.6% Native; 1.1% Asian; 0.5% Pacific; 9.0% “other”; 3.7% unknown
 - Hispanic ethnicity: 8.5%
- 93.7% had deployed at least once previously

Procedures

- Participants completed standardized assessment packet during unit formations
- Study approved by University of Texas San Antonio IRB

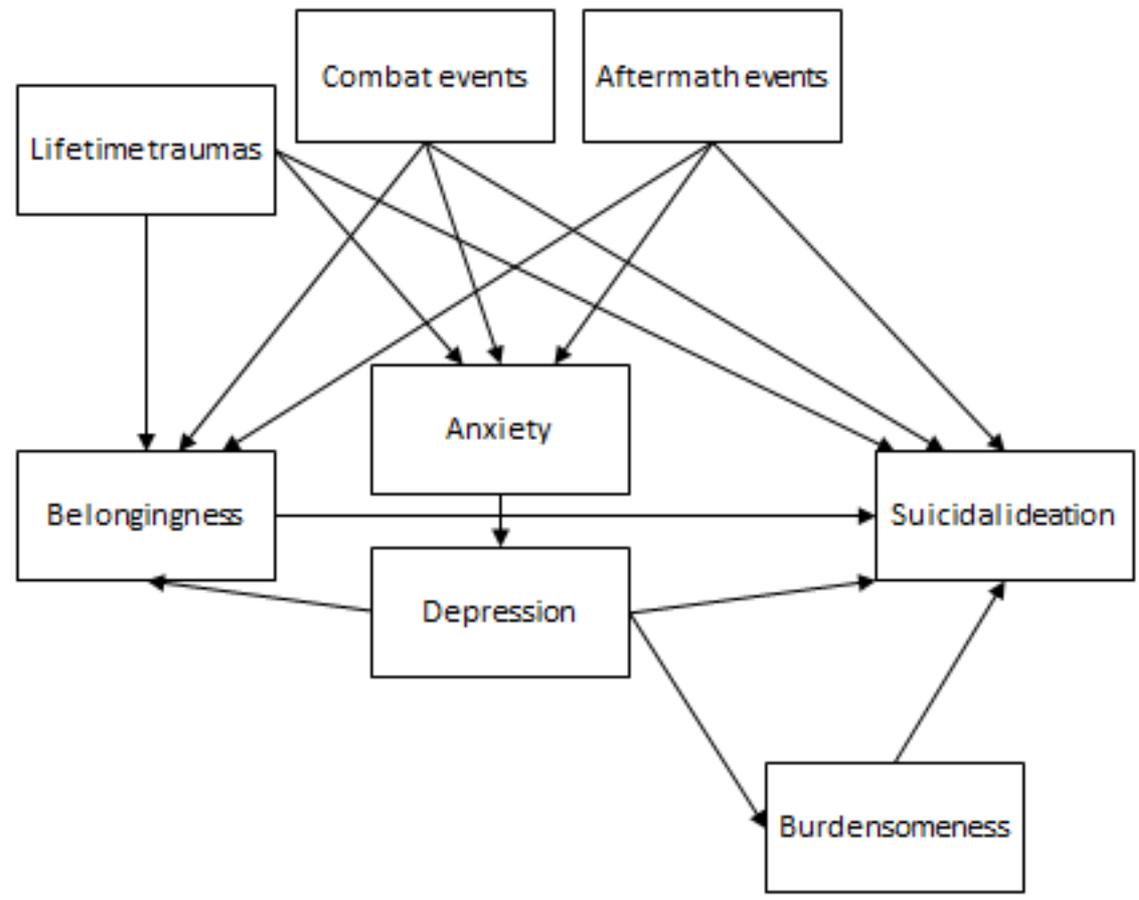
Measures

Construct	Measure
Combat exposure	Deployment Risk and Resilience Inventory <ul style="list-style-type: none"> • Combat Experiences Scale • Aftermath of Battle Scale
Suicidal ideation	Beck Scale for Suicidal Ideation
Noncombat trauma	Traumatic Events Scale
Depression	Anxiety Depression Distress Inventory-27 general distress subscale
Anxiety	Anxiety Depression Distress Inventory-27 somatic anxiety subscale
Belongingness	Interpersonal Support Evaluation List belonging subscale
Perceived burdensomeness	Interpersonal Needs Questionnaire perceived burdensomeness subscale

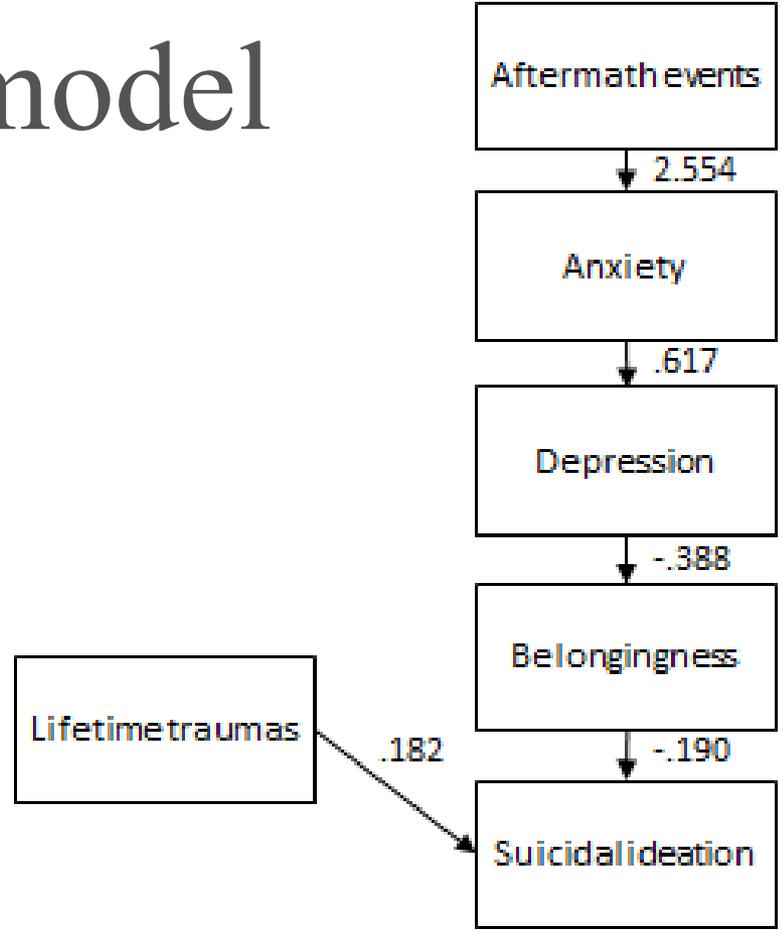
Data analytic approach

- Structural equation modeling with robust maximum likelihood estimation
- Indicators of “good fit”:
 - Nonsignificant chi-square, $CFI > .90$, $RMSEA < .10$, $SRMSR < .08$

Initial model



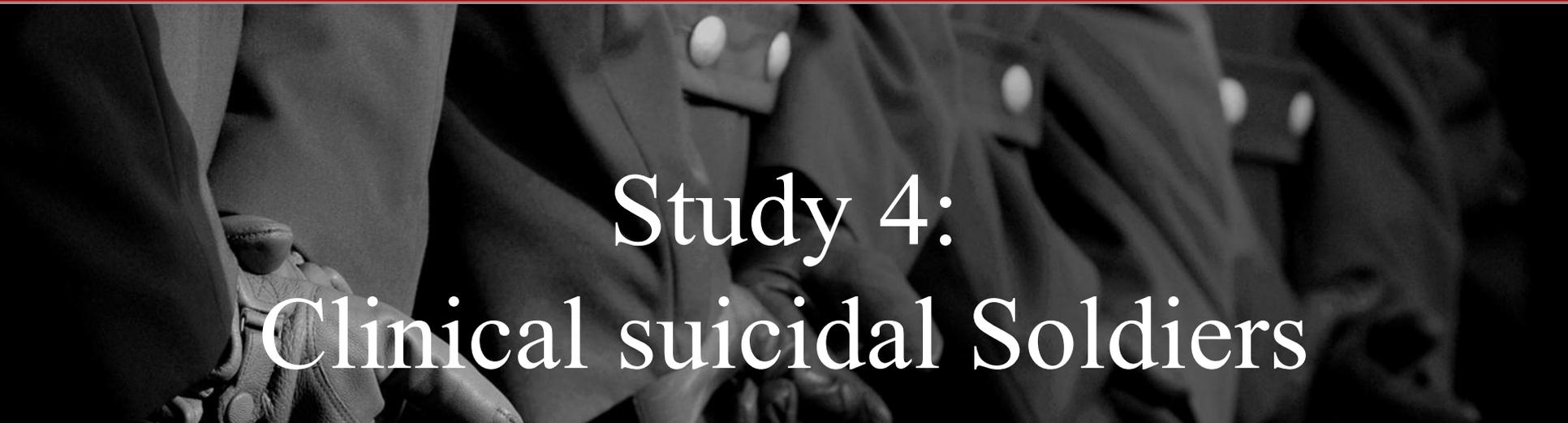
Final model



Indirect effect of aftermath events on suicidal ideation:

$B = .116, SE = .051$
 $p = .023$

$\chi^2 (9) = 9.441, p = .398; SRMSR = .058; RMSEA = .017 (90\% CI: .000-.088); CFI = .994$



Study 4: Clinical suicidal Soldiers

Participants

- 103 active duty Soldiers referred for suicide risk
 - 100% Army
- 90 male, 13 female
- Age: M = 27.53
- Race: 66.0% Cauc; 12.6% African-Amer; 1.9% Asian/Pac Isl; 3.9% Native; 8.7% “Other”
 - Hispanic ethnicity: 25.2%

Clinical diagnoses

- Major depressive disorder 80.6%
- Posttraumatic stress disorder 35.9%
- Alcohol dependence 22.3%
- Substance dependence 16.5%
- Social phobia 10.7%
- Panic disorder 6.8%
- Alcohol abuse 6.8%
- Substance abuse 5.8%
- Depressive disorder NOS 2.9%

Procedures

- Participants completed standardized self-report measures and clinician interviews as part of intake evaluation for RCT testing psychotherapy for suicidal behaviors
- Study approved by Madigan Army Medical Center IRB, University of Utah IRB

Measures

Construct	Measure
Suicide attempt	Suicide Attempt Self Injury Interview
Suicidal ideation	Beck Scale for Suicidal Ideation
Combat exposure	Deployment Risk and Resilience Inventory <ul style="list-style-type: none"> • Combat Experiences Scale • Aftermath of Battle Scale
Noncombat trauma	Life Events Checklist
Depression	Beck Depression Inventory 2 nd Edition
Hopelessness	Beck Hopelessness Scale

Data analytic approach

- Generalized linear modeling with robust maximum likelihood estimation
- Variables standardized prior to analyses

Predictor	B	SE	p	OR	95% C.I.	
					Lower	Upper
Suicidal ideation (negative binomial)						
Depression	.288	.097	.003	1.334	1.104	1.613
Hopelessness	.386	.087	< .001	1.471	1.241	1.744
Noncombat trauma	-.084	.061	.168	.920	.816	1.036
Combat experiences	-.231	.144	.109	.794	.599	1.053
Aftermath events	.315	.142	.027	1.370	1.036	1.811
Lifetime suicide attempts (linear)						
Noncombat trauma	.369	.112	.001			
Combat experiences	-.234	.262	.372			
Aftermath events	.201	.279	.471			
Recent suicide attempt (binary logistic)						
Depression	.040	.360	.913	1.040	.514	2.106
Hopelessness	-.160	.357	.654	.852	.423	1.716
Suicidal ideation	.077	.296	.794	1.080	.605	1.930
Noncombat traumas	.742	.321	.021	2.099	1.120	3.934
Combat experiences	-.359	.642	.576	.698	.198	2.459
Aftermath events	-.068	.621	.913	.934	.277	3.155
Previous attempts	-.552	.388	.155	.576	.269	1.231



Discussion

Discussion

- Deployed military personnel:
 - Combat exposure neither directly nor indirectly associated with suicidal ideation directly or indirectly
- CONUS military personnel:
 - Aftermath but not combat experiences related to suicidal ideation (Sareen et al., 2007)
 - Noncombat traumas associated with lifetime and recent suicide attempts (Panagioti et al., 2009)

Implications

- Consistent with fluid vulnerability theory (Rudd, 2006)
 - Negative impact of early life stressors and trauma
 - Cognitive interpretation (i.e., meaning) of combat-related events might be key
- Possible explanations:
 - Contextual differences in deployed, garrison settings
 - Temporal factors: recent vs. distal combat (Griffith, in press)
 - Potential role of guilt, shame, moral injury

Limitations

- Nonrepresentative samples
- Reliance on self-report measures
 - Deployed personnel in particular might have particularly high stigma-related concerns
- Different methods of measuring combat versus noncombat traumas

Questions?

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