

Impact of Veterans' Psychosocial Well-Being on their Suicidal Ideation during the Transition from Military to Civilian Life

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Presentation Topics

- Background
- Analyses #1 & #2: Does veterans' psychosocial well-being predict their suicidal ideation during transition?
- Analysis #3: Does veterans' initial post-separation psychosocial well-being contribute to changes in their suicidal ideation during reintegration; if so, does this hold after accounting for impact of mental health symptoms?
- Q&A

Veteran Suicide Research

- Suicide rates among U.S. military veterans are approximately 1.5 times higher (2019) and risen faster over time compared to their U.S non-veteran counterparts¹
 - Particularly notable among those not using VHA services
- Identifying predictors of suicide outcomes is key to guiding prevention
- Suicidal ideation is one of the strongest risk factors for suicide behavior and a key indicator of distress/outcome warranting intervention
 - Call for more research addressing suicidal ideation (SI)²⁻³
 - Such research has the potential to better inform upstream suicide prevention (i.e., efforts to support veterans before they reach a point of crisis)

¹ Office of Suicide and Mental Health Prevention, 2021

² Jobes & Joiner, 2019

³ Kleiman, 2020

Military to Civilian Transition



Transition period may be a high-risk period for suicidal thoughts and behavior, and is a critical time for prevention and early intervention



About 200,000 U.S. service members separate each year



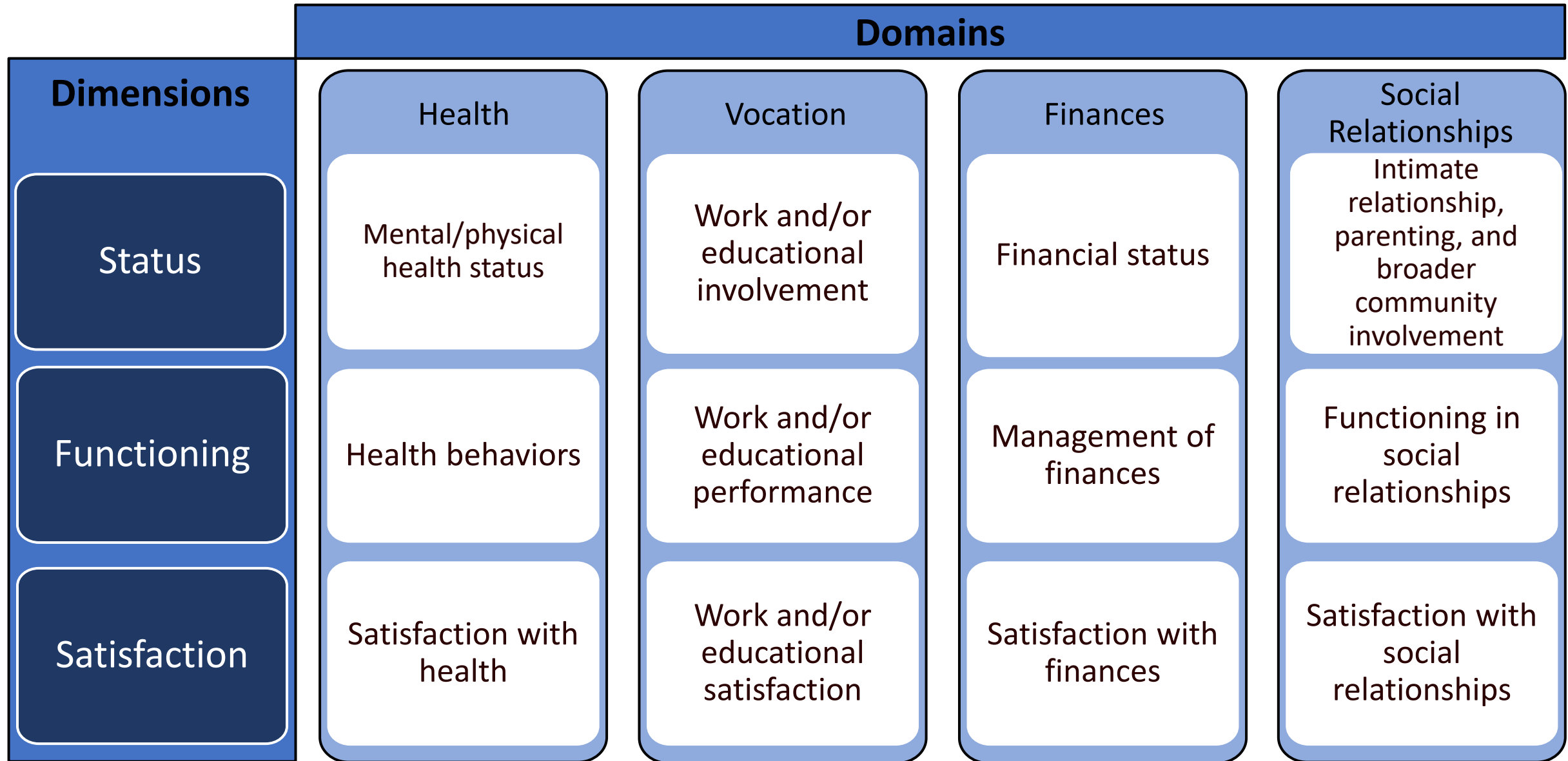
Some veterans may experience loss of sense of self and purpose, as well as stress related to need to establish or reestablish occupational and social roles

Predictors of Suicide Risk

- Majority of research examining predictors of suicide outcomes has focused on demographic and mental health factors
- Less attention to other aspects of veterans' life circumstances
 - Call for consideration of novel predictors of suicide outcomes¹
 - Increased focus on role of Social Determinants of Health (SDoH) in suicide risk

¹ Franklin et al., 2017

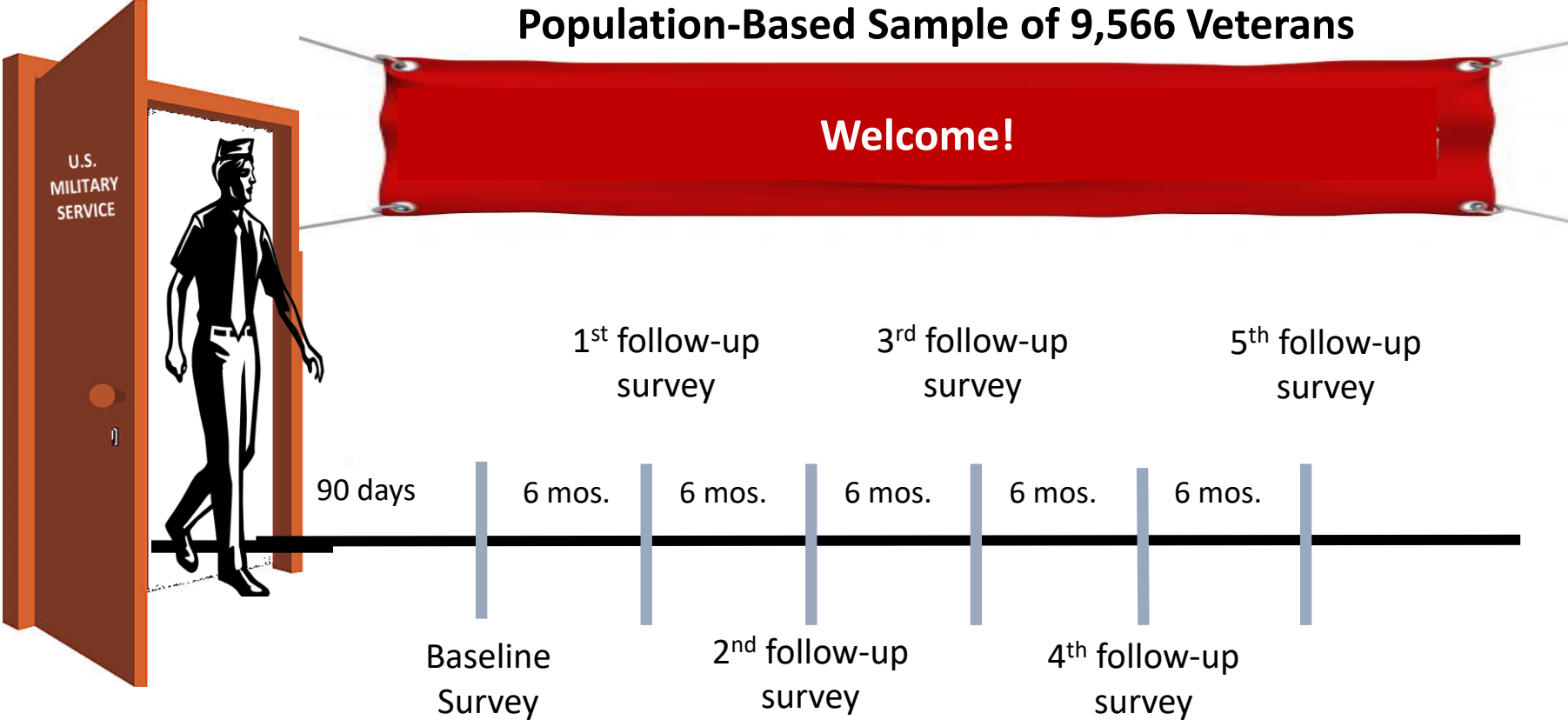
Psychosocial Well-Being Indicators



Psychosocial Well-Being

- Aligns with SDoH in that many social determinant domains (e.g., economic stability, education access and quality, social and community context) contribute to psychosocial well-being
- Distinct in that psychosocial well-being concepts include a focus on functioning and satisfaction in addition to social-material conditions, whereas SDoH typically focus only on the latter
 - Example: financial functioning/satisfaction vs. income

The Veterans Metrics Initiative (TVMI) Study



Suicidal ideation: Item-9 of PHQ-9

Over the **last 2 weeks**, how often have you been bothered by the following problems?

Item-9: Thoughts that you would be better off dead or of hurting yourself in some way

- Not at all (0)
- Several days (1)
- More than half the days (2)
- Nearly every day (3)

Endorsement of Suicidal Ideation in TVMI Study

Entire Sample

Response option	T1 (N=9510)	T2 (N=7197)	T3 (N=7240)	T4 (N=6510)	T5 (N=5892)	T6 (N=5298)
Not at all	91.7	91.0	90.8	90.8	90.0	90.0
Several days	5.2	5.7	6.0	6.1	6.8	7.2
More than half the days	1.8	1.9	1.9	1.9	1.9	1.5
Nearly every day	1.3	1.4	1.3	1.2	1.3	1.3

Analyses for Machine Learning Analyses

Overall Model performance

- Random Forest (RF) Model performance evaluated by area under the receiver operating characteristic curves (AUC)
- RF models compared to logistic regression models to evaluate

Predictor Importance

- Predictor importance was evaluated based on RF **mean decrease in accuracy values**, which quantify the relative contribution of each predictor

Analysis #1: Predictors of Veterans' SI in Year 1

**Socio-demographic
characteristics**

(20 predictors)

Military characteristics

(22 predictors)

**Trauma exposure and
stress**

(10 predictors)

**Mental and physical
health conditions**

(25 predictors)

**Initial Post-Separation
Well-being**

(46 predictors)

Model Performance (AUCs)

Random forest (RF) models

Fold 1: 0.89

Fold 2: 0.88

Logistic models

Fold 1: 0.89

Fold 2: 0.89

Limited incremental value of modeling interactions

Top Predictors of SI from Random Forest Models

Variable Name	Direction of Effect
Depression symptom severity	+
Anxiety symptom severity	+
Self-identified depression	+
Psychological resilience	-
Health satisfaction	-
Health functioning	-
Community satisfaction	-
Self-identified mental health condition	+
Community functioning	-
PTSD symptoms	+
Chronic Stress	+

American Journal of Preventive Medicine

RESEARCH ARTICLE

The First Year After Military Service: Predictors of U.S. Veterans' Suicidal Ideation

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Analysis #2: Predictive Value of Well-Being Indicators as a Whole

1

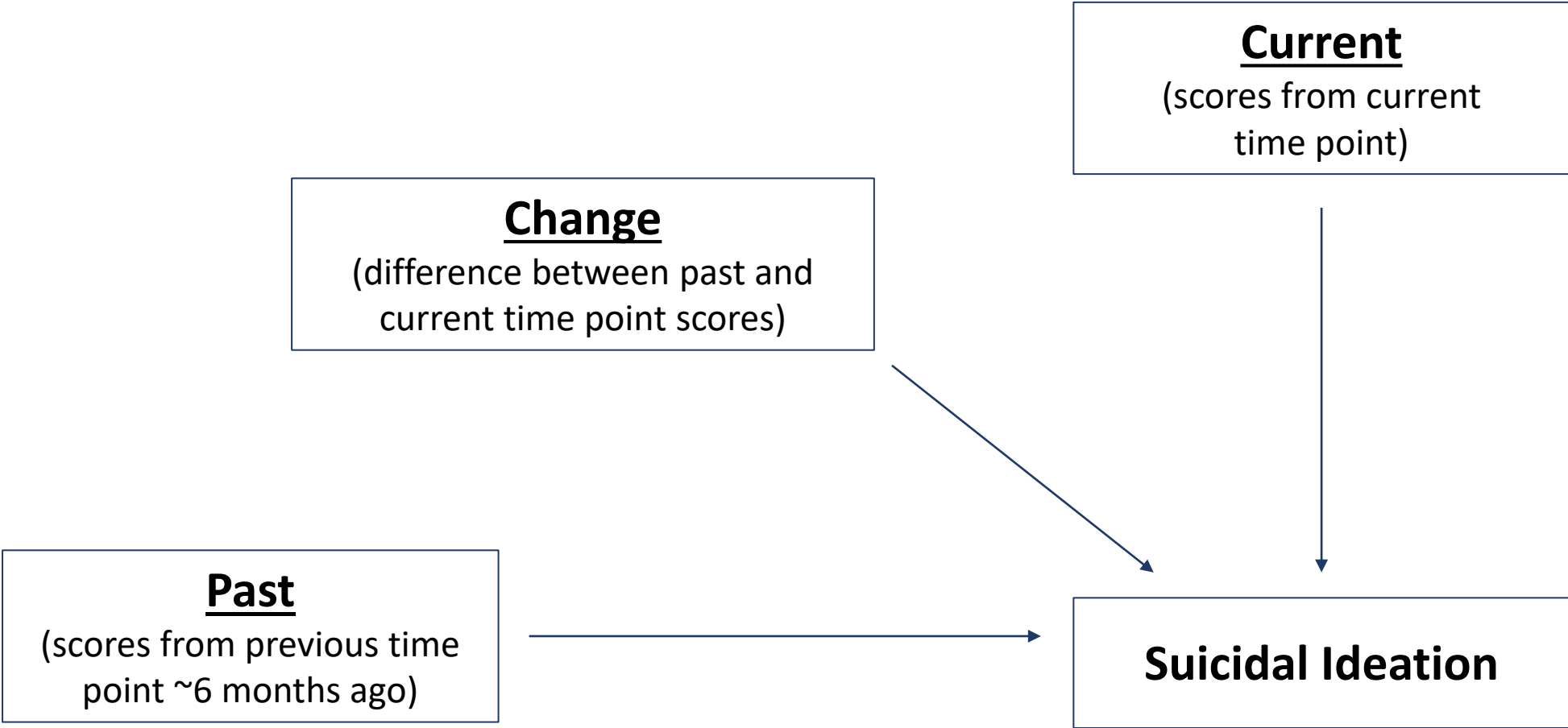


2

Examine how well-being indicators predict SI relative to mental health predictors

Examine contribution of static and change-based well-being predictors to SI

Static and Change-Based Predictors of Suicidal Ideation



Veterans who endorsed suicidal ideation at T1 were not included in analyses because no previous time point data available

Overall Model Performance

Model	AUC (95% CI)
Well-Being	
Psychopathology	

Top Predictors of SI from Random Forest Models

Variable Name	Variable Type	Direction of Effect
Health satisfaction decrease	Change	+
Health promoting behavior decrease	Change	+
Community functioning decrease	Change	+
Intimate relationship satisfaction decrease	Change	+
Community functioning	Past	-
Health promoting behavior	Past	-
Secure financial status	Current	-
Social involvement	Change	- +
Community satisfaction	Past	-
Full time vocation	Current	-
Health satisfaction	Past	-

Take-Home and Implications from Machine Learning Analyses



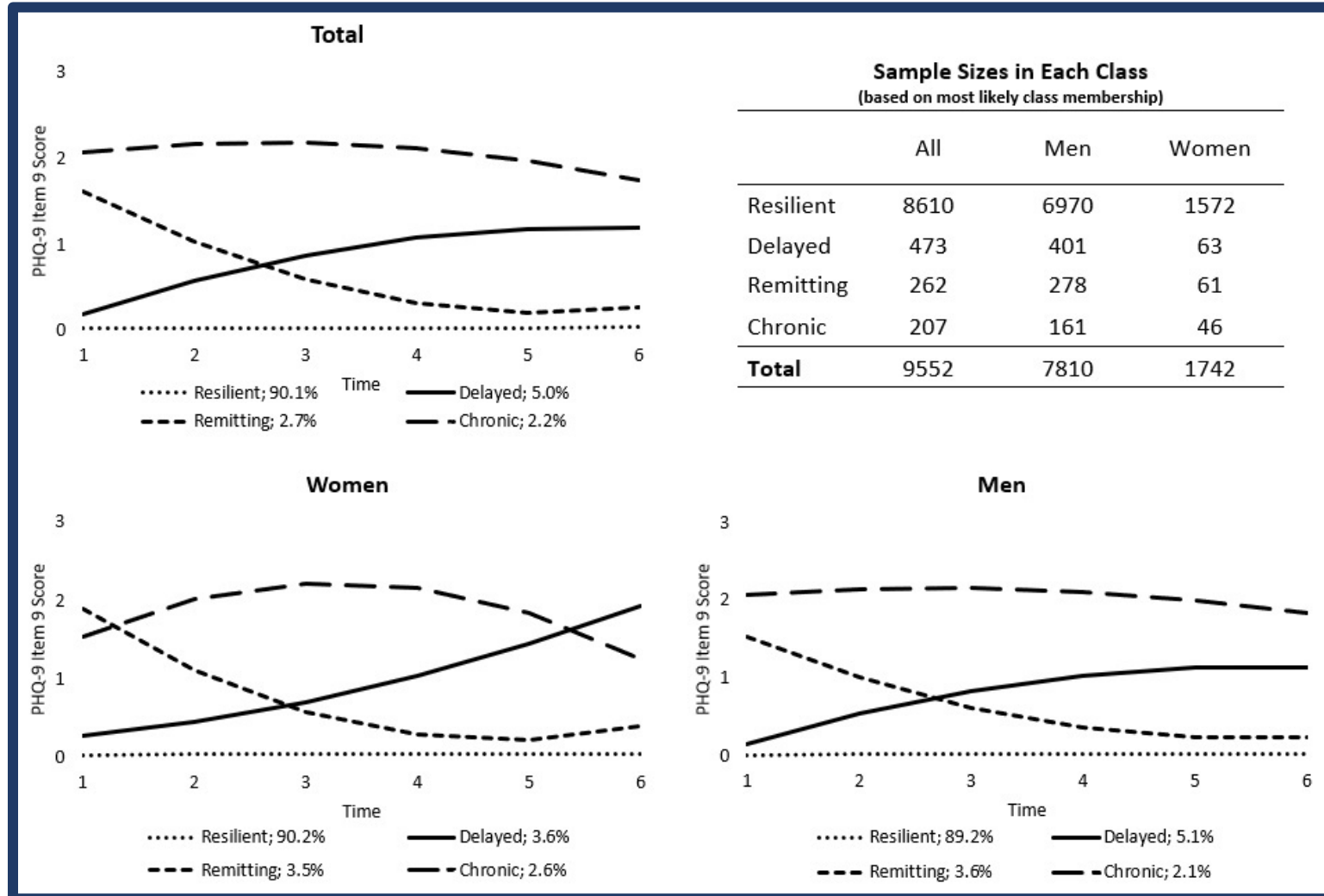
Veterans' broader health and social well-being at the time of transition contributes to their SI during transition

Well-being predictors were good, albeit weaker, predictors of veterans' SI relative to mental health predictors

No evidence that well-being and mental health predictors work together to predict SI during military transition

Both static and change-based well-being predictors were associated with veterans' SI, but findings will require replication

Analysis #3: Well-Being and SI Trajectories







Latent Class Growth Analysis

- 4 distinct SI trajectories over the first three years following separation from service in the TVMI cohort.
- Findings were similar for men and women

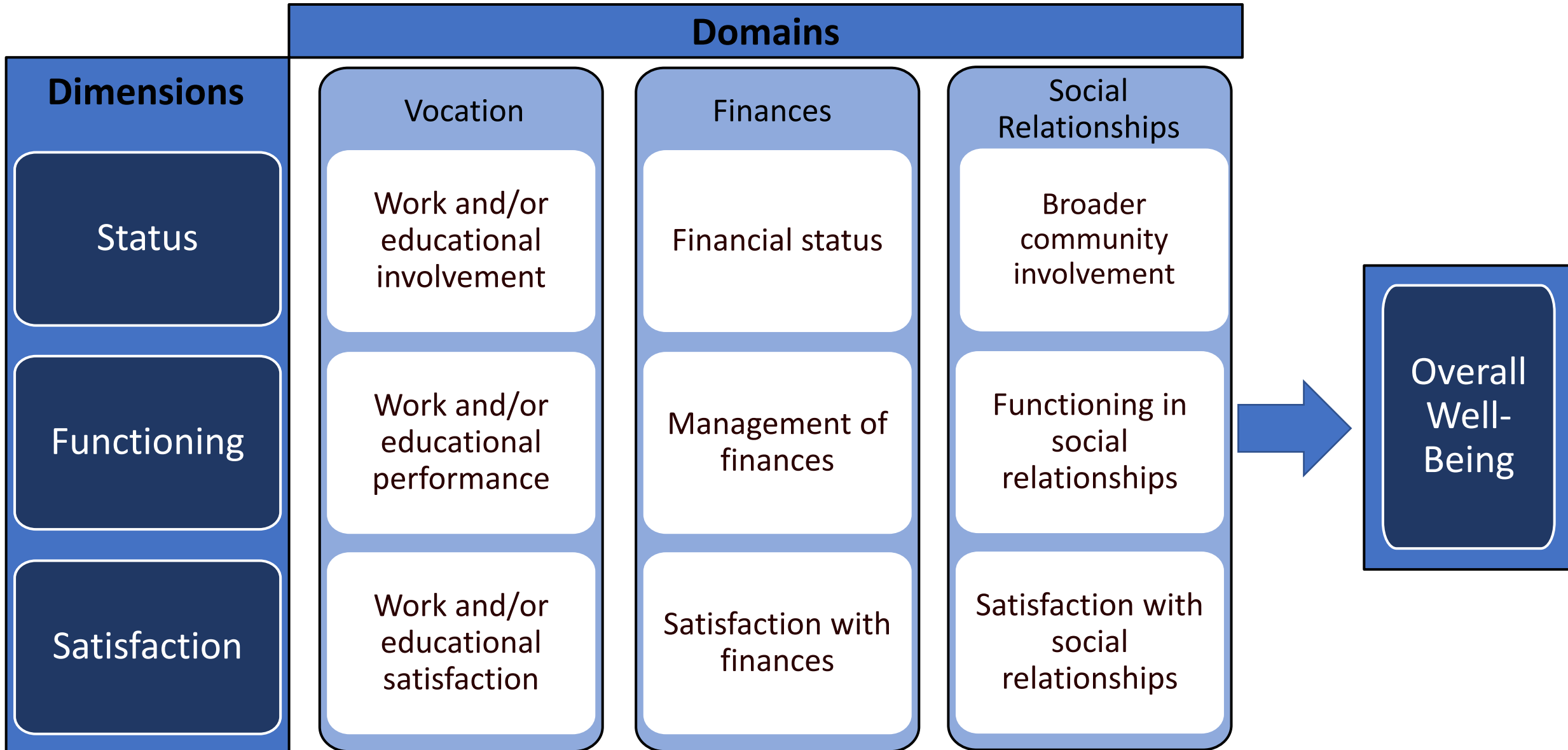
ORIGINAL ARTICLE

Trajectories of suicidal ideation following separation from military service: Overall trends and group differences

Claire A. Hoffmire PhD^{1,2}  | Shelby Borowski PhD³  | Brandon J. Griffin PhD^{4,5}  |
Shira Maguen PhD^{6,7}  | Dawne Vogt PhD^{3,8}

- Associated with increased odds of assignment to a higher-risk trajectory:
 - Younger age, minority race/ethnicity, medical and other (vs. honorable) separation, VHA service utilization within 3 months of separation
- Associated with lower odds of assignment to a higher-risk trajectory:
 - Continued service in the National Guard/Reserves, officer rank

Well-Being Predictors of SI Trajectory



Initial Post-Separation Well-Being Predicts SI Trajectory

- **Higher levels of vocational, financial, social, and overall well-being at the time of military separation were associated with significantly lower likelihood of experiencing all high-risk SI trajectories**
 - All remained significant after adjusting for demographic and military characteristics identified as potential confounders
 - Race/ethnicity, type of military separation, highest rank, VHA use
 - The strongest domain-specific associations were observed for social well-being
- **Within each domain, all dimensions were associated with significantly lower likelihood of experiencing any higher-risk trajectory**
 - All remained significant after adjusting for demographic and military characteristics identified as potential confounders
 - Vocational functioning, financial status, and social satisfaction were the strongest dimensions within their respective domains in these adjusted models

The Role of Mental Health

- Well-being and mental health are associated (bidirectional) and thus mental health may both confound and mediate the association between well-being and SI trajectory

- **Conducted a series of models;** not a formal mediation analysis
 - Mental health covariates: depression, alcohol misuse, posttraumatic stress disorder.

- **Domains** (vocational, financial, social):
 - All associations remained significant, though effects moderately attenuated

- **Dimensions** (status, functioning, satisfaction)
 - Most associations remained significant yet attenuated; only vocational status and financial functioning and satisfaction did not
 - Social involvement (status), rather than satisfaction, was now most strongly associated with higher-risk SI

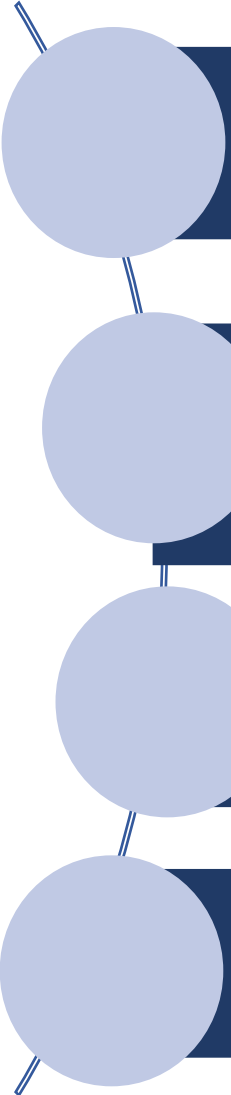
The Role of Mental Health

Multinomial Logistic Regressions Predicting SI Class Membership

	Overall Well-Being			Vocational Well-Being			Financial Well-Being			Social Well-Being		
	OR	95% C.I.	<i>p</i>	OR	95% C.I.	<i>p</i>	OR	95% C.I.	<i>p</i>	OR	95% C.I.	<i>p</i>
Crude												
Delayed	0.43	0.38, 0.49	<.001	0.77	0.71, 0.83	<.001	0.64	0.58, 0.70	<.001	0.56	0.50, 0.62	<.001
Remitting	0.26	0.22, 0.31	<.001	0.65	0.59, 0.71	<.001	0.48	0.41, 0.55	<.001	0.35	0.30, 0.41	<.001
Chronic	0.24	0.20, 0.29	<.001	0.57	0.52, 0.63	<.001	0.44	0.37, 0.53	<.001	0.38	0.32, 0.45	<.001
Adjusted for demographics and military characteristics												
Delayed	0.47	0.41, 0.54	<.001	0.80	0.74, 0.87	<.001	0.70	0.63, 0.78	<.001	0.54	0.48, 0.61	<.001
Remitting	0.28	0.22, 0.35	<.001	0.70	0.63, 0.78	<.001	0.52	0.43, 0.62	<.001	0.37	0.30, 0.44	<.001
Chronic	0.26	0.21, 0.33	<.001	0.62	0.56, 0.70	<.001	0.54	0.45, 0.64	<.001	0.40	0.33, 0.48	<.001
Adjusted for demographics, military characteristics, and mental health												
Delayed	0.62	0.53, 0.72	<.001	0.87	0.79, 0.95	.002	0.81	0.73, 0.91	<.001	0.68	0.60, 0.78	<.001
Remitting	0.54	0.41, 0.70	<.001	0.85	0.75, 0.97	.019	0.76	0.64, 0.91	.002	0.60*	0.48, 0.76	<.001
Chronic	0.48*	0.36, 0.64	<.001	0.74*	0.65, 0.85	<.001	0.71*	0.58, 0.88	.002	0.68	0.54, 0.85	.001

Notes. Odds Ratios (OR) with 95% Confidence Intervals (95% C.I.) and p-values (*p*) represent the change in odds of assignment to each comparison class relative to the reference class (resilient) per unit increase in each predictor.

Take-Home and Implications from Trajectory Analyses



Psychosocial well-being (especially the social domain), is associated with SI trajectory in the first three years post-separation.

All dimensions of well-being are important to assess and address, not only social-material conditions (status), which are more traditionally considered/aligned with SDoH

The relationship between well-being at separation and SI trajectory is not fully explained by mental health symptoms at the time of separation

Suicide prevention efforts for transitioning Veterans may benefit from taking a more holistic, upstream approach that considers well-being broadly.

Questions?

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