



Examining the Predictive Utility of the MMPI-2-RF Interpersonal Psychological Theory of Suicide (IPTS) Proxy Scales in a Forensic Inpatient Sample

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Suicide Background

800,000
deaths
worldwide
(WHO, 2019)



10th
cause of death in
the US
(Hedegaard, Curtin, & Warner, 2018)

10.6
million
considered
suicide
(SAMHSA, 2019)

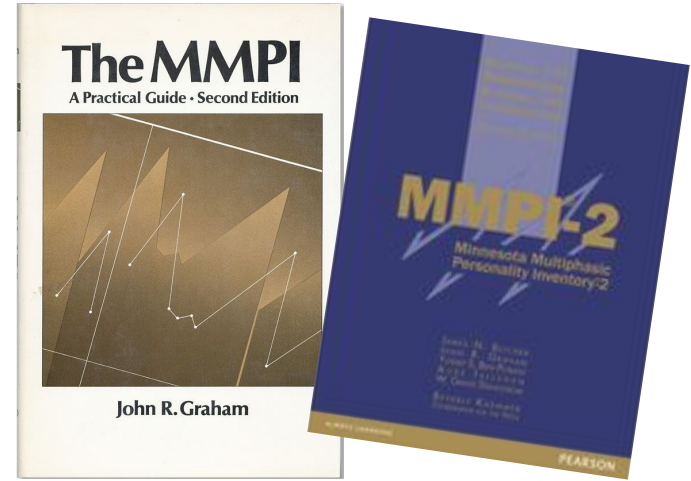
1.4 million
attempt
suicide
(Hedegaard, Curtin,
& Warner, 2018)



MMPI & Suicide Risk Assessment

MMPI & MMPI-2

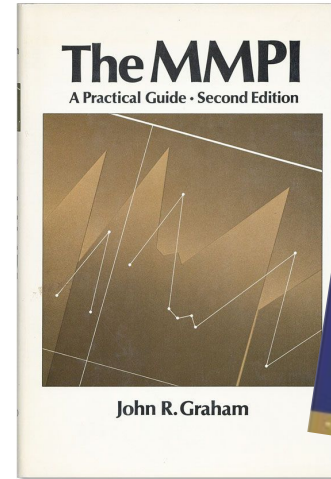
- No MMPI scales or items predicted suicide potential or future attempts (Clopton, 1979).
- MMPI-2:
 - Critical Item lists (Koss & Butcher, 1973; Lachar & Wrobel, 1979)
 - DEP4 - Suicidal Ideation (Butcher et al., 2001)
 - Suicide Potential Scale (Glassmire et al., 2001; Friedman, Archer, & Handel, 2004)



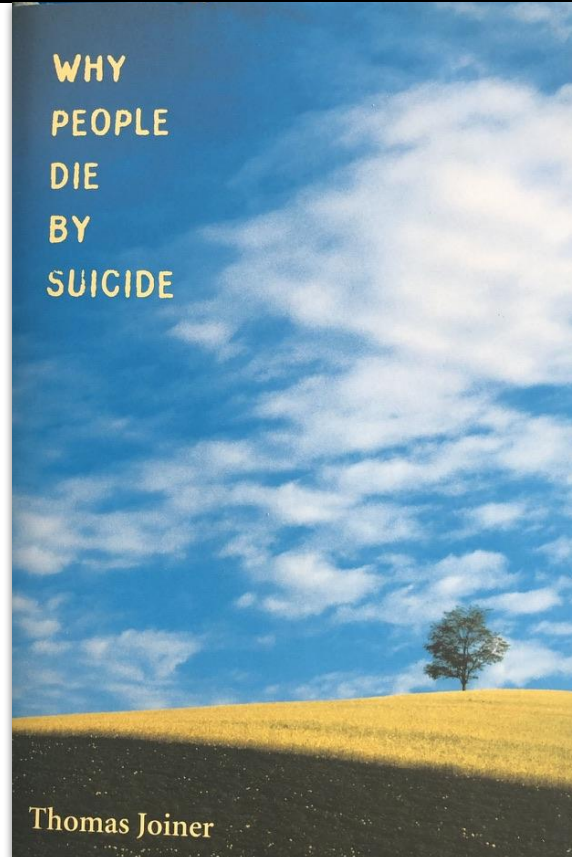
MMPI & Suicide Risk Assessment

MMPI-2-RF

- Suicidal Death / Ideation Scale (SUI)
 - Strong predictor of suicidal ideation, past suicide attempts, hospitalizations due to suicidality, & future suicide attempts (Gottfried et al., 2014; Glassmire et al., 2016; Tarescavage et al., 2017; Tellegen & Ben-Porath, 2011).

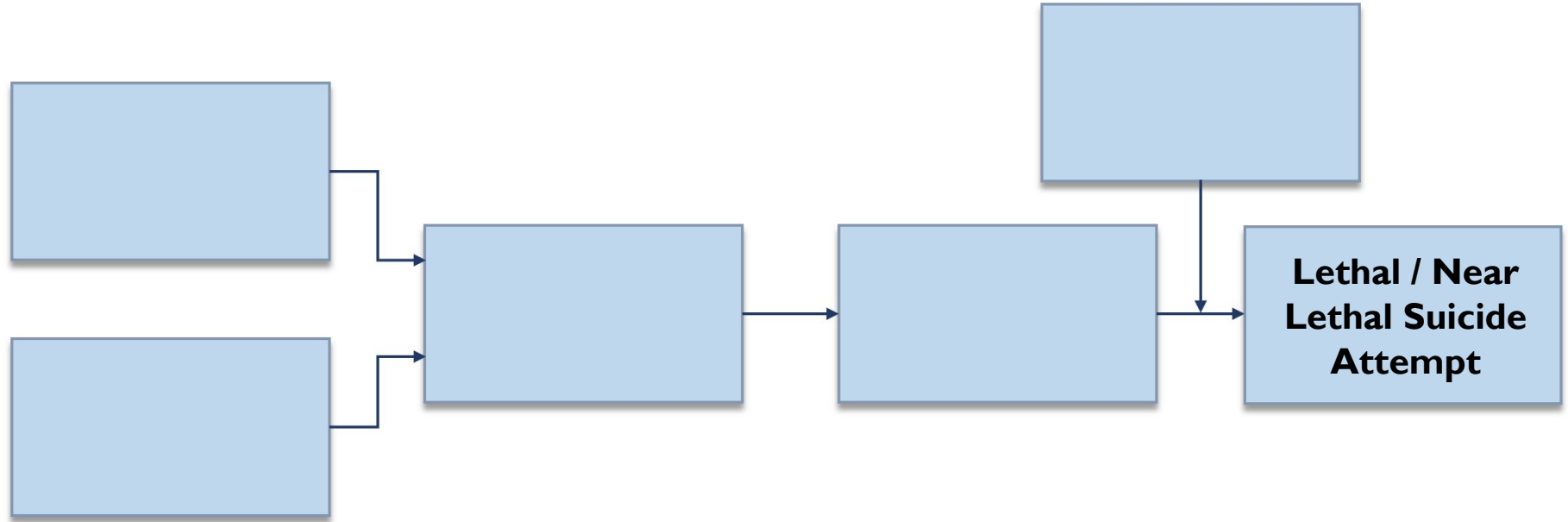


Interpersonal-Psychological Theory of Suicide



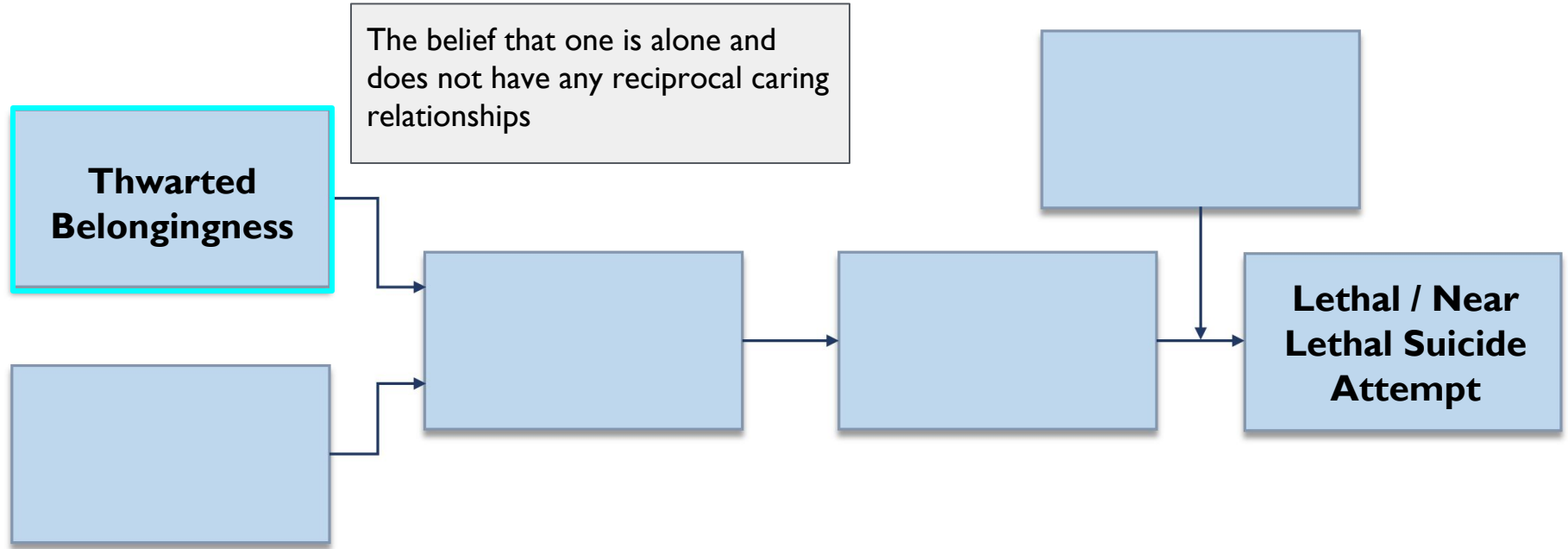
(Joiner, 2005)

IPTS Model



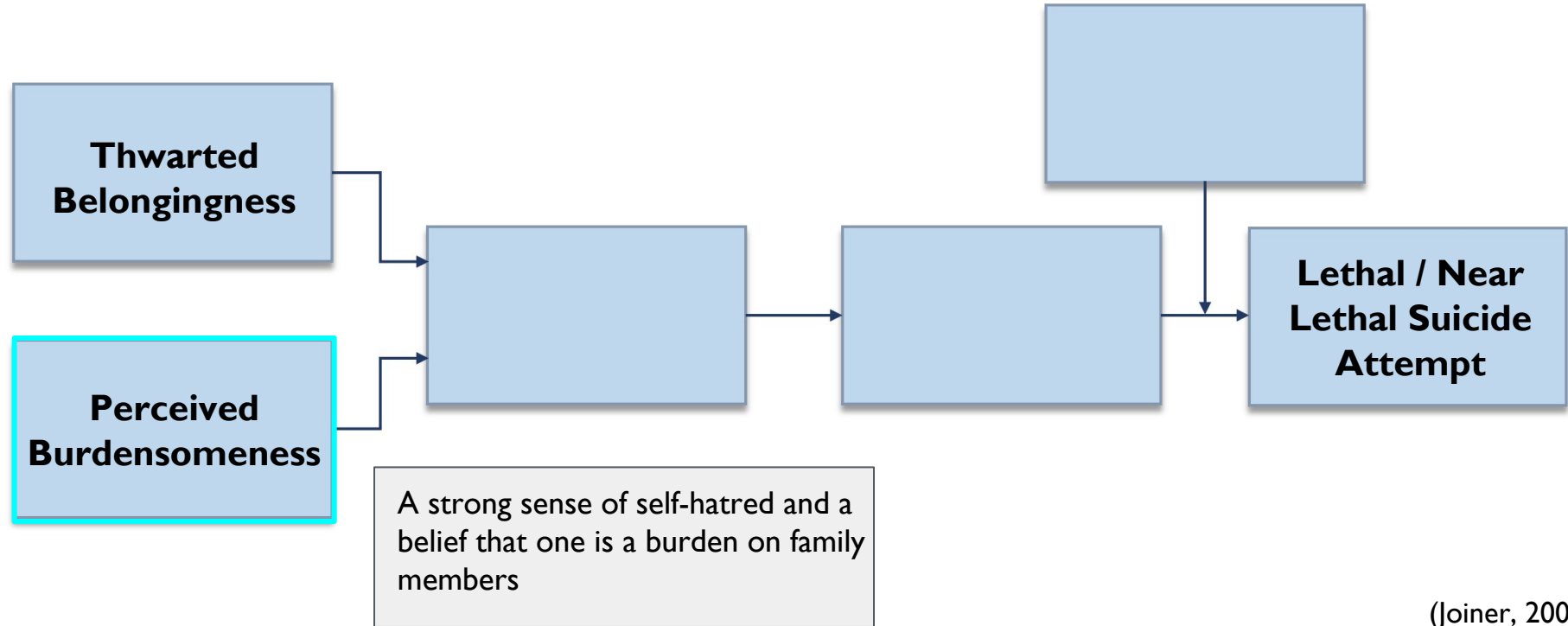
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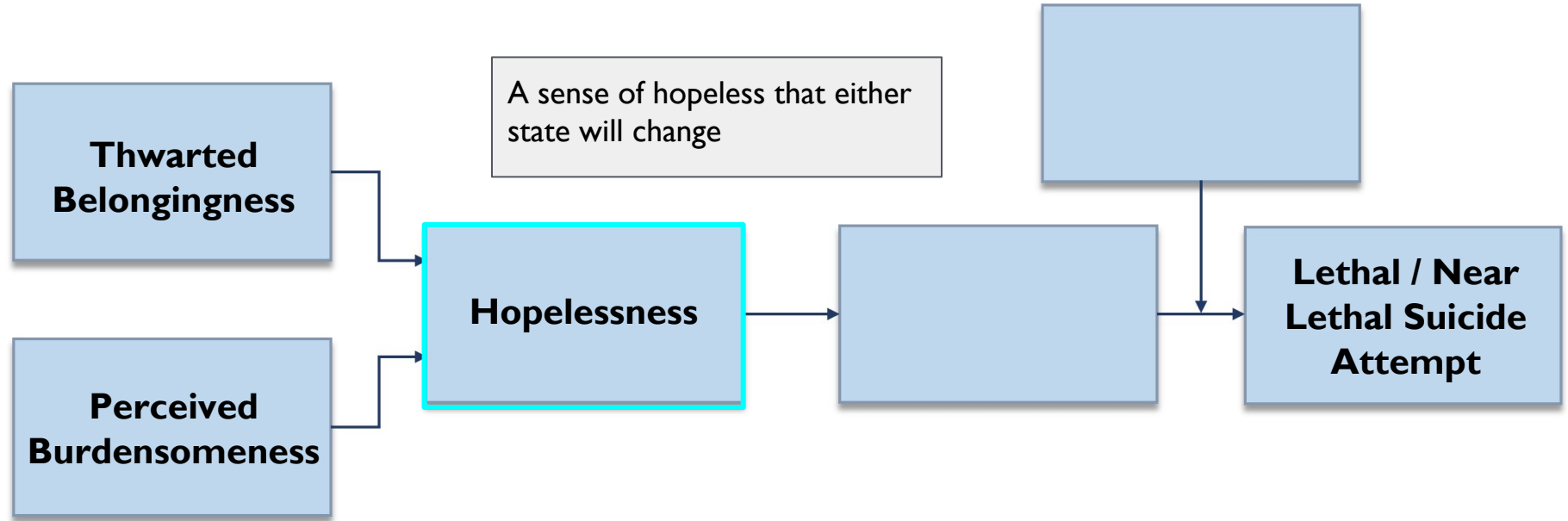
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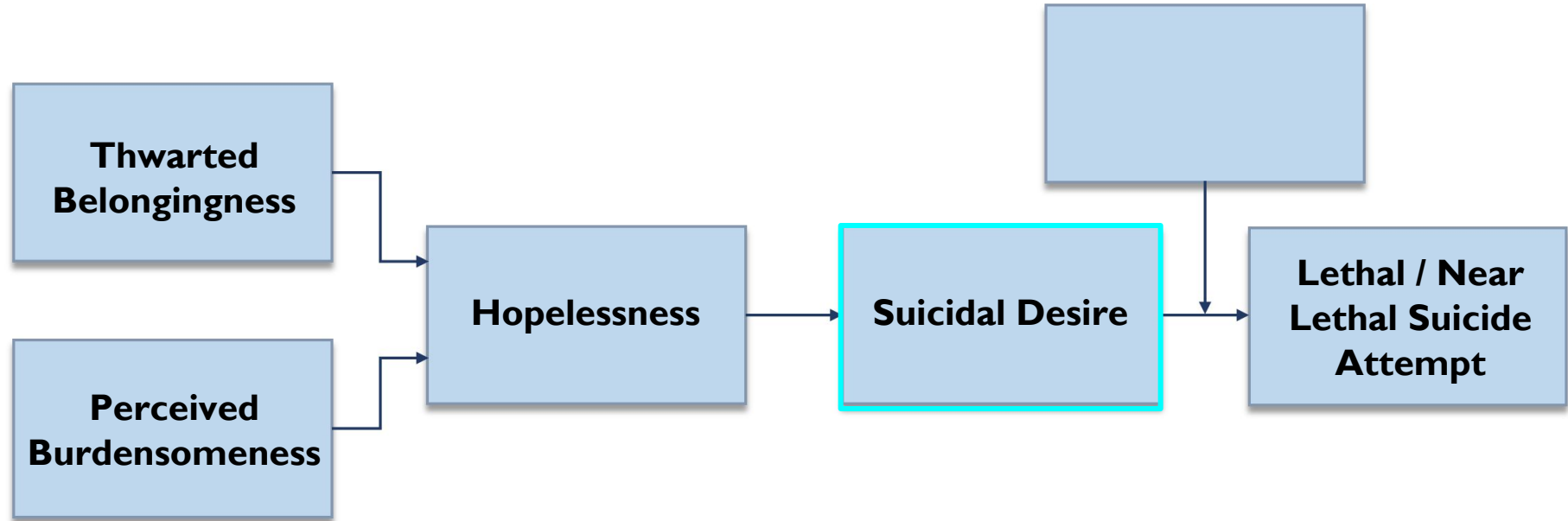
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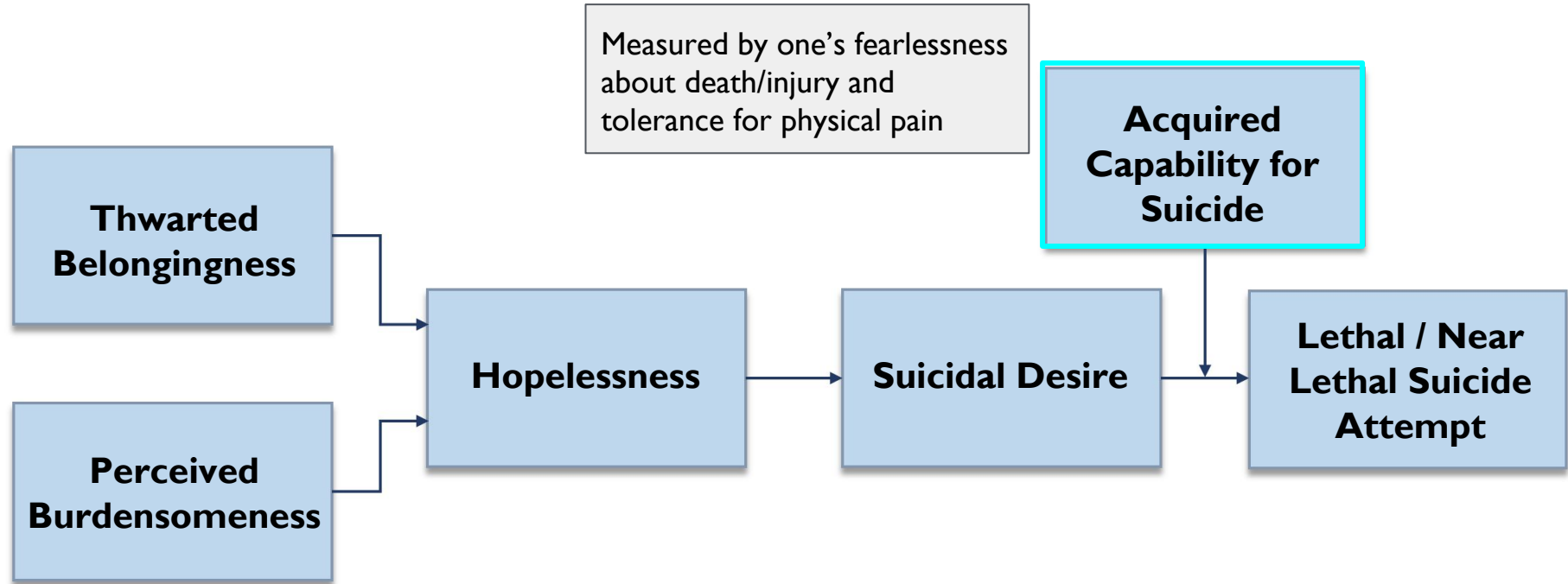
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IPTS Model



(Joiner, 2005)

IPTS Model



(Joiner, 2005)

IPTS Proxy Indicators

Burdensomeness, Belongingness, and Capability: Assessing the Interpersonal–Psychological Theory of Suicide With MMPI-2-RF Scales

Assessment
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Abstract

Given the emerging body of literature demonstrating the validity of the interpersonal–psychological theory of suicide (IPTS), and the importance of increasing our understanding of the development of risk factors associated with suicidal behavior, it seems worthwhile both to expand IPTS research via Minnesota Multiphasic Personality Inventory–2–Restructured Form (MMPI-2-RF) correlates and to expand the availability of methods by which to assess the constructs of the IPTS. The present study attempted to do so in a large adult outpatient mental health sample by (a) inspecting associations between the IPTS constructs and the substantive scales of the MMPI-2-RF and (b) exploring the utility of MMPI-2-RF scale–based algorithms of the IPTS constructs. Correlates between the IPTS constructs and the MMPI-2-RF scales scores largely followed a pattern consistent with theory-based predictions, and we provide preliminary evidence that the IPTS constructs can be reasonably approximated using theoretically based MMPI-2-RF substantive scales. Implications of these findings are discussed.

IPTS Proxy Indicators

(Anestis et al., 2018)

RF-PB (Perceived Burdensomeness)

Malaise (MLS)

Helplessness/Hopelessness (HLP)

Self-Doubt (SFD)

Inefficacy (NFC)

Stress and Worry (STW)

Family Problems (FML)

RF-TB (Thwarted Belongingness):

Low Positive Emotions (RC2)

Juvenile Conduct Problems (JCP)

Family Problems (FML)

Interpersonal Passivity (IPP)

Social Avoidance (SAV)

Shyness (SHY)

Aggressiveness-Revised (AGGR-r)
(Low)

RF-AC (Acquired Capability for Suicide):

Aggression (AGG)

Juvenile Conduct Problems (JCP)

Aggressiveness-Revised (AGGR-r)

Suicidal/Ideation Death (SUI)

Mechanical-Physical Interests (MEC)

Disconstraint-Revised (DISC-r)

Activation (ACT)

Behavior Restricting Fears (BRF) (Low)

Multiple Specific fears (MSF) (Low)

IPTS Proxy Indicators

(Anestis et al., 2018)

RF-PB (Perceived Burdensomeness)

RF-PB

Stress and Worry (STW)

Family Problems (FML)

RF-TB (Thwarted Belongingness):

RF-TB

Low Positive Emotions (RC2)

Aggressiveness-Revised (AGGR-r)
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RF-AC (Acquired Capability for Suicide):

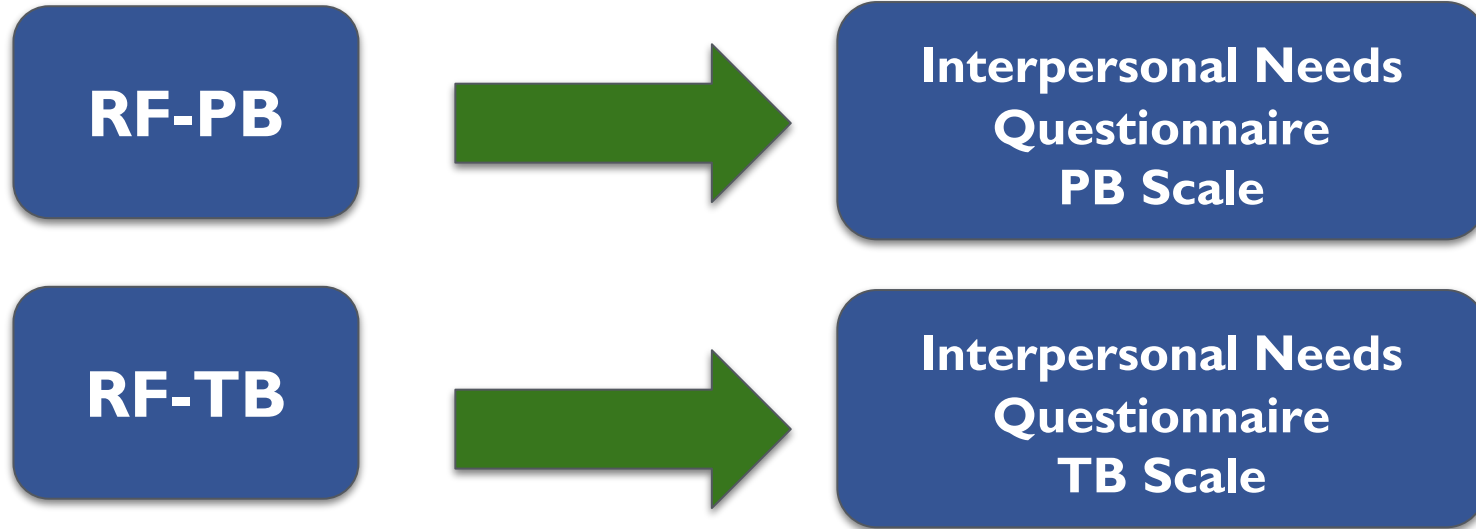
RF-AC

Aggression (AGG)

Juvenile Conduct Problems (JCP)

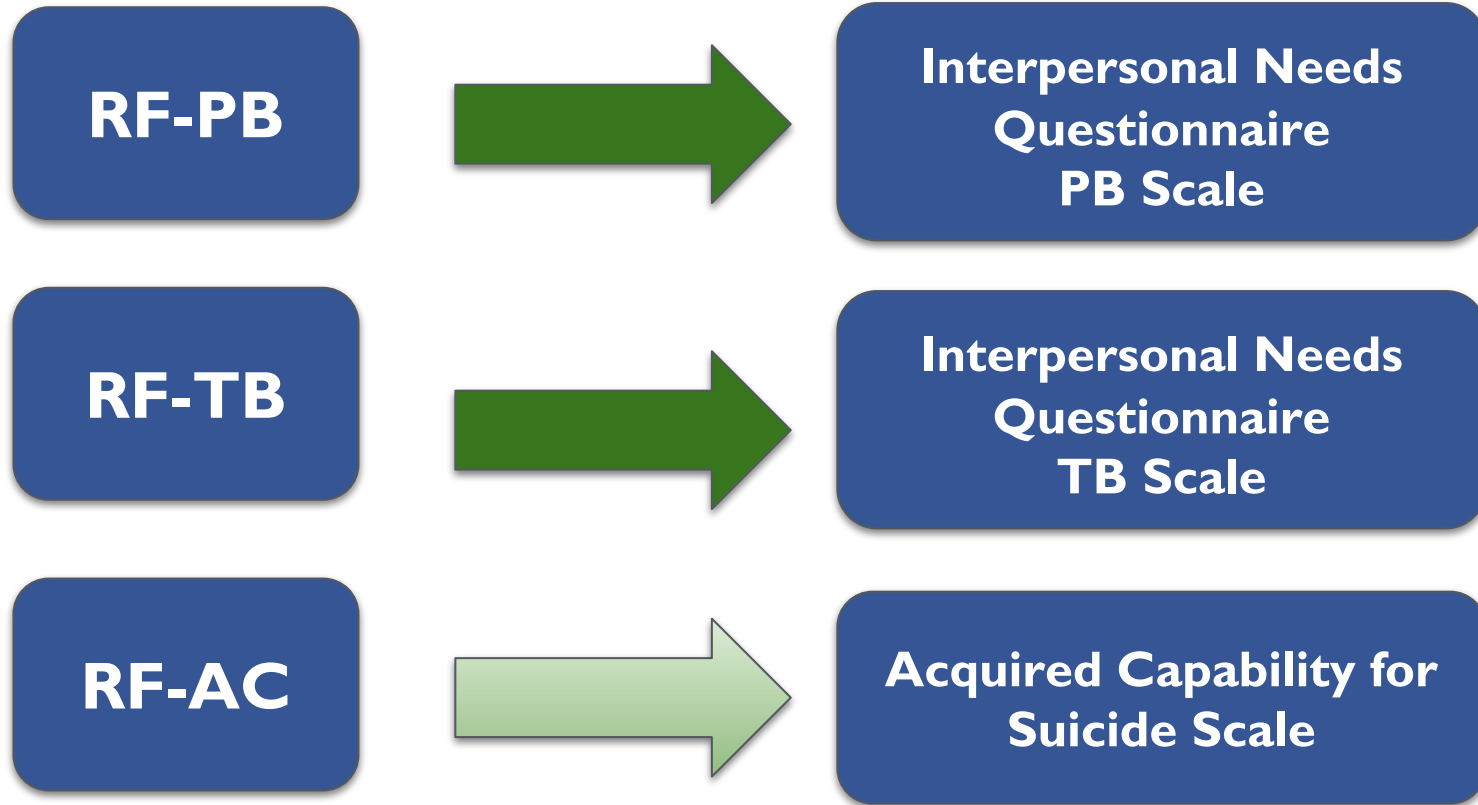
Aggressiveness-Revised (AGGR-r)

IPTS Proxy Indicators - Findings



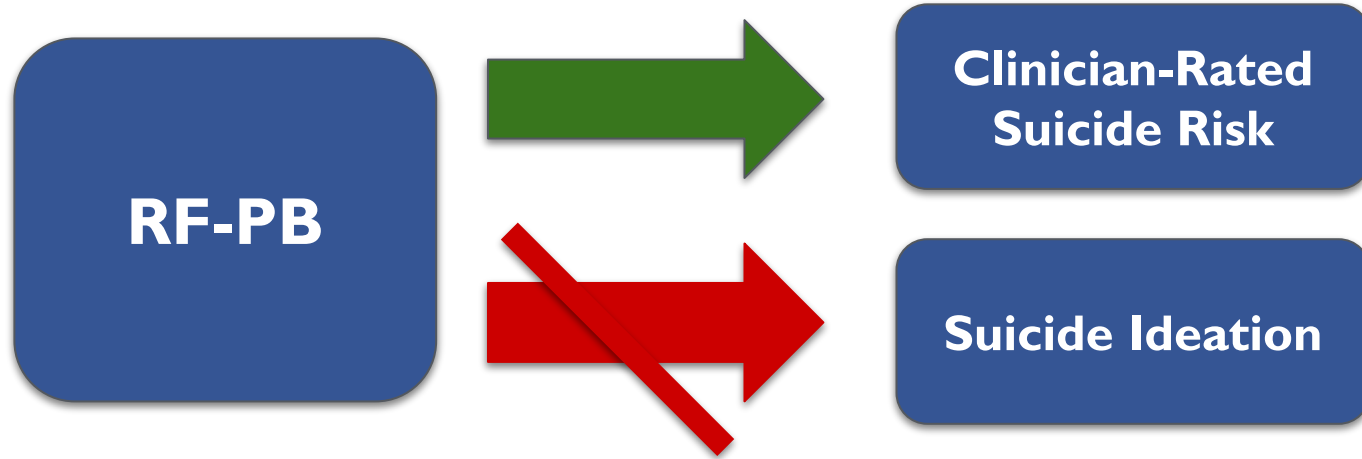
(Anestis et al., 2018)

IPTS Proxy Indicators - Findings



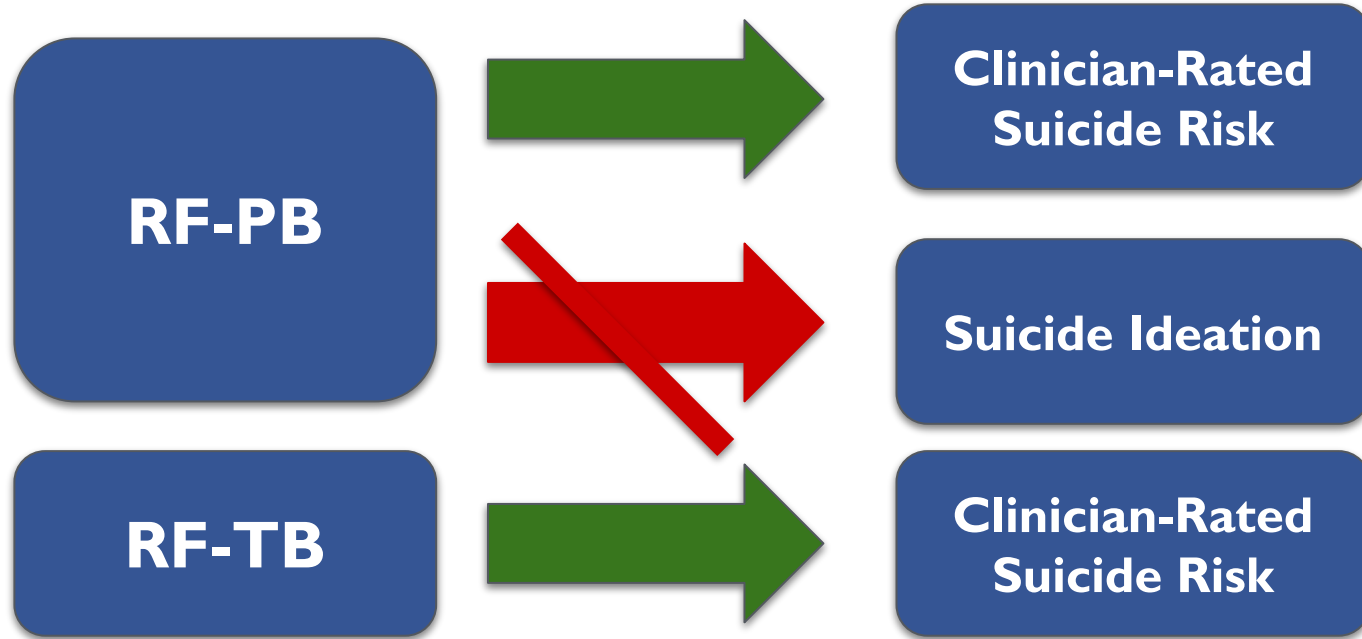
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IPTS Proxy Indicators - Findings

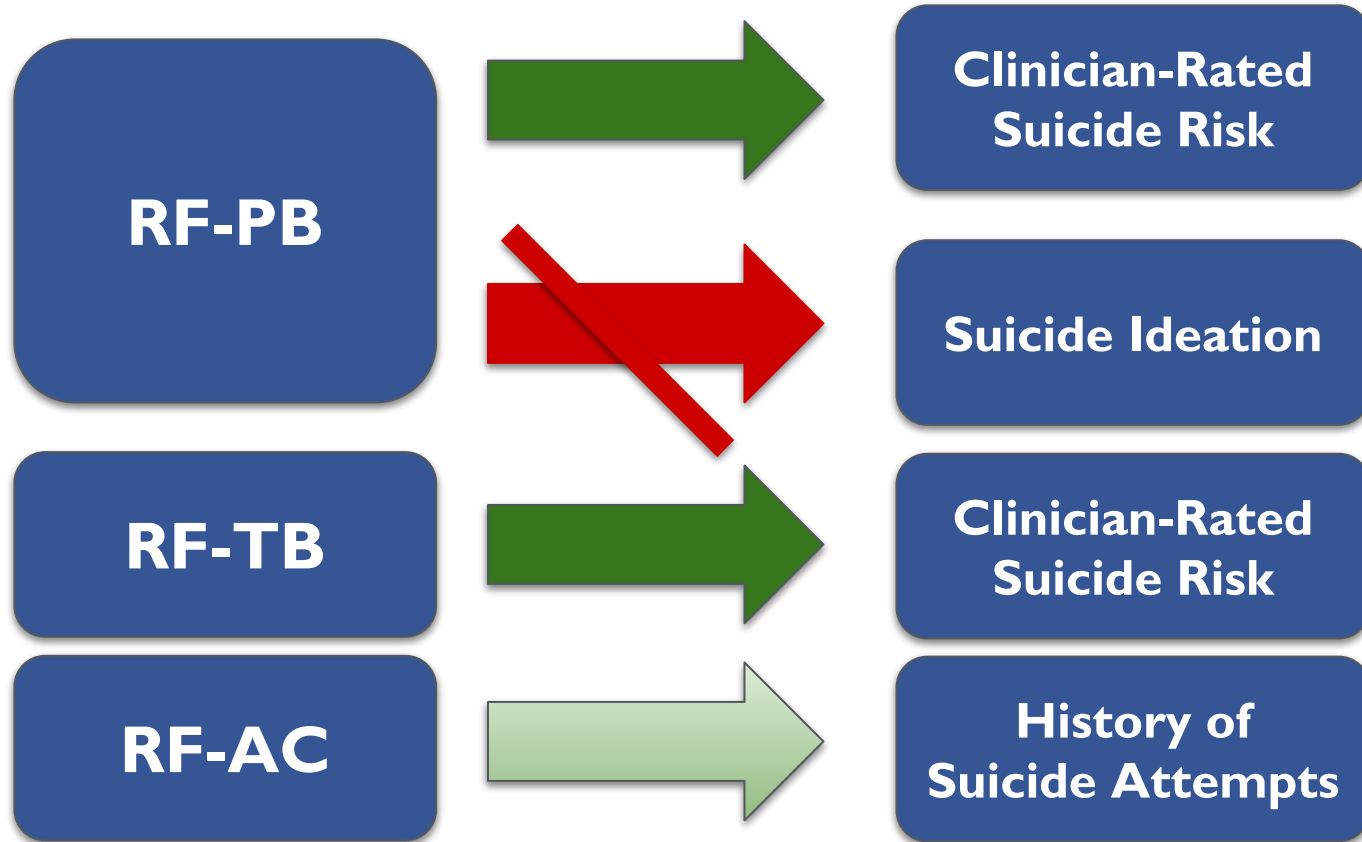


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IPTS Proxy Indicators - Findings

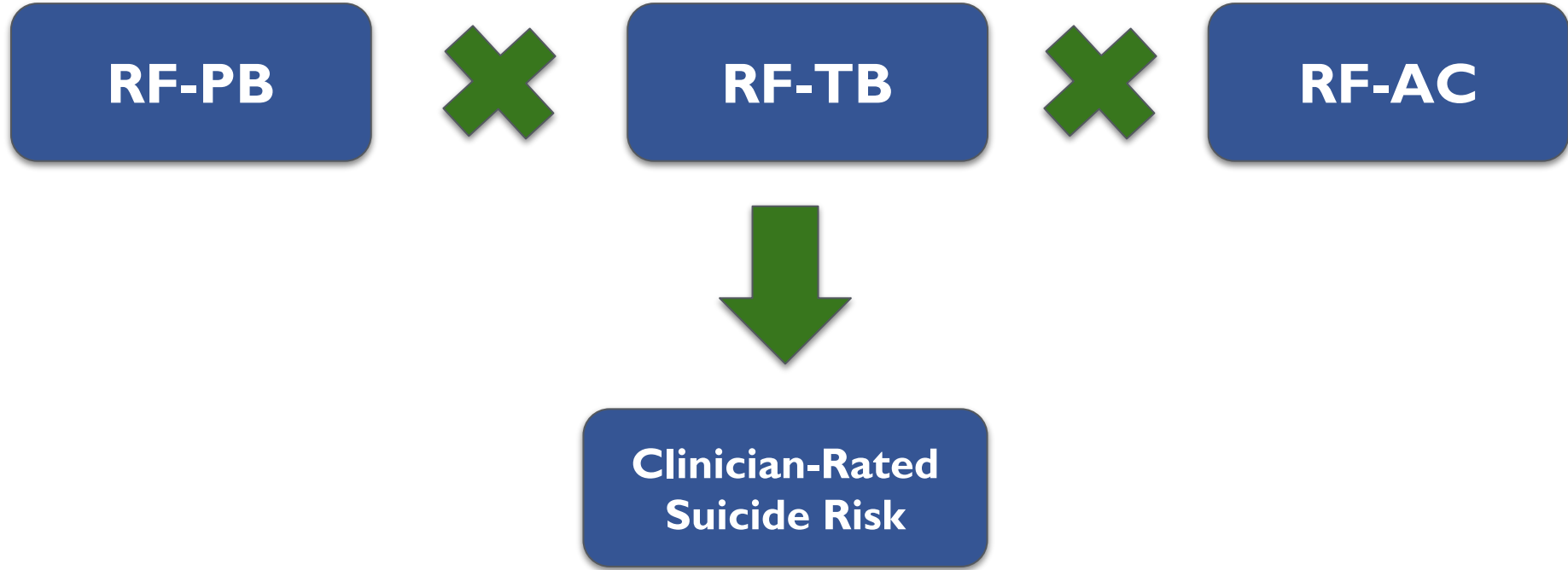


IPTS Proxy Indicators - Findings



(Anestis et al., 2018)

IPTS Proxy Indicators - Findings



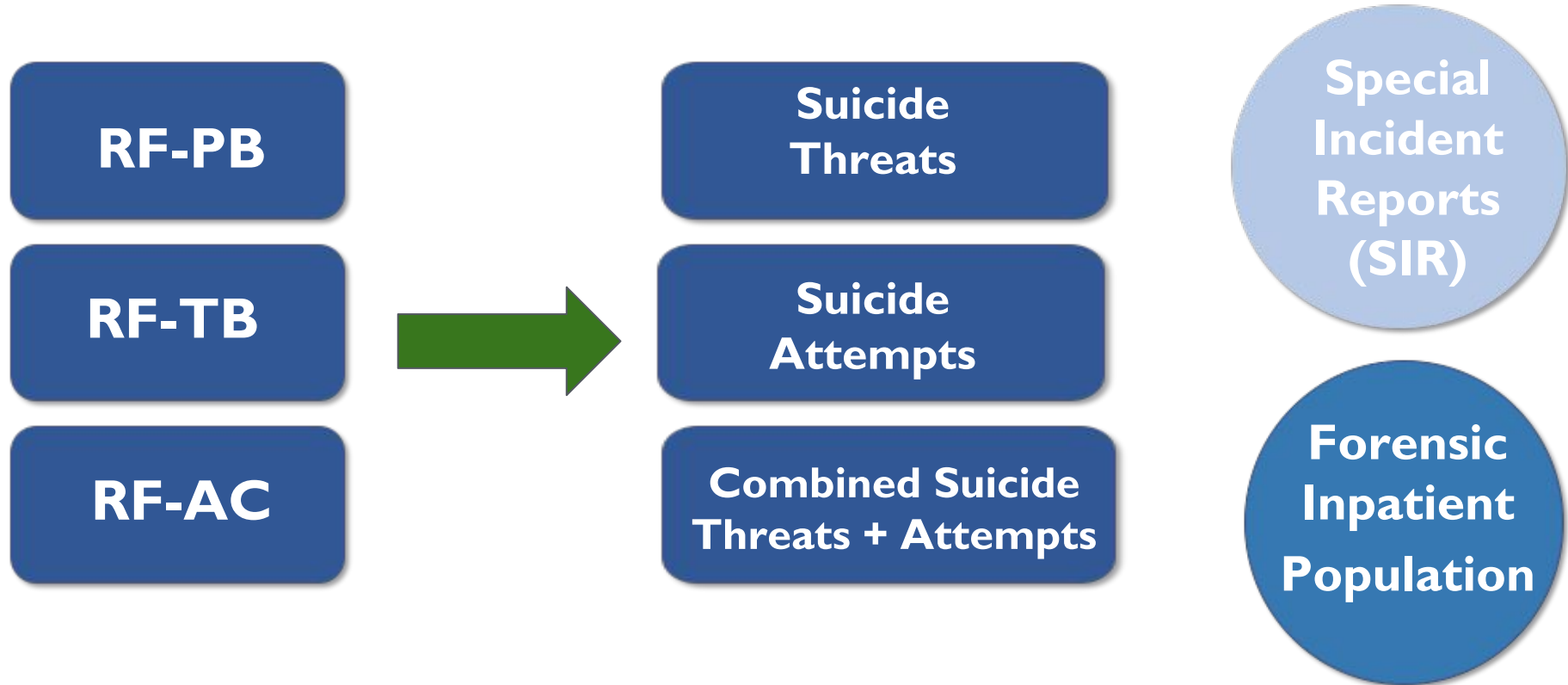
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Current Study



Current Study



Conceptual Hypotheses

Outcome Variable	RF-PB	RF-TB	RF-AC	RF-PB + RF-TB	RF-PB + RF-AC	RF-TB + RF-AC	All Three
Suicide Threat	*	*		*		*	*
Suicide Attempt	*	*	*	*	*	*	*
Combined	*	*	*	*	*	*	*

Final Hypotheses

Outcome Variable	RF-PB	RF-TB	RF-AC	RF-PB + RF-TB	RF-PB + RF-AC	RF-TB + RF-AC	All Three
Suicide Threat	*	*		*			*
Suicide Attempt	*	*		*			*
Combined	*	*		*			*

Final Hypotheses

Outcome Variable	RF-PB	RF-TB	RF-AC	RF-PB + RF-TB	RF-PB + RF-AC	RF-TB + RF-AC	All Three
Suicide Threat	*	*		*			*
Suicide Attempt	*	*		*			*
Combined	*	*		*			*

Negative Binomial Regressions

Relative Risk Ratios



Method

Participants

- Archival sample of 1,110 forensic inpatients from a high security state psychiatric hospital
- Exclusionary Criteria:
 - $CNS \geq 18$,
 - $VRIN-r \geq 80$,
 - $TRIN-r \geq 80$,
 - $F-r \geq 120$, or
 - $Fp-r \geq 100$

$n = 1,110$



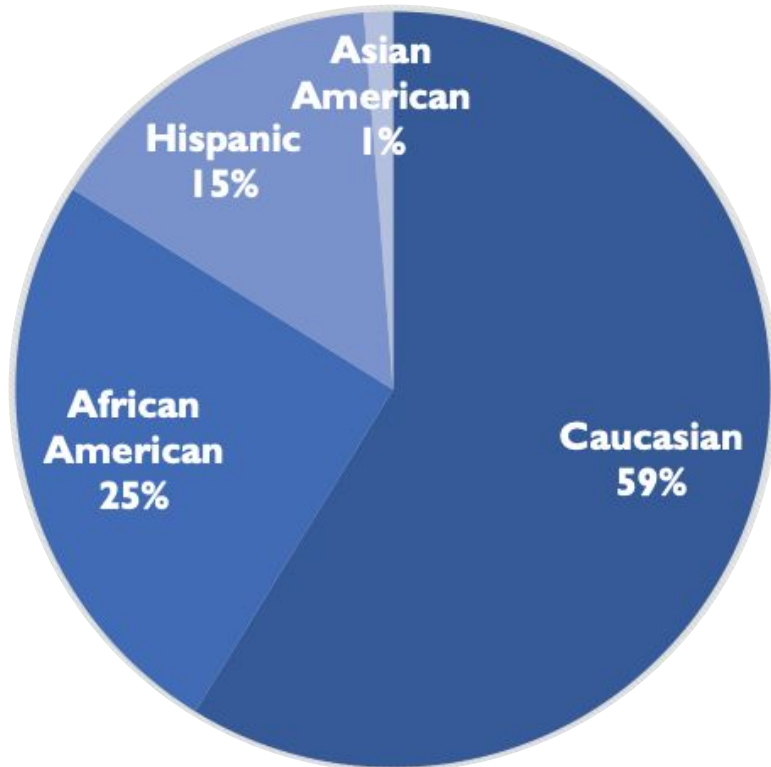
Excluded Invalid MMPI-2-RF
Protocols



$n = 751$

(Tarescavage, Glassmire, & Burchett, 2018)

Demographics



AGE
 $M (SD) = 40.5 (11.3)$



73% Male



27% Female

(Tarescavage, Glassmire, & Burchett, 2018)

Common Commitment Types

NGRI

54%

Not guilty by
reason of insanity

MDO

23%

Mentally disordered
offender

IST

18%

Incompetent
to stand trial

Psychiatric Diagnoses

34.4%
Schizophrenia



11.7%
Bipolar
Disorder

24.4%
Schizoaffective
Disorder

14.6%
Antisocial
Personality
Disorder

Measures

- **Minnesota Multiphasic Personality Inventory-2 Restructured Form (Ben-Porath & Tellegen, 2008/2011)**
 - ~80% completed the MMPI-2, which was rescored to examine MMPI-2-RF data
 - IPTS Proxy Indices (Anestis et al., 2018)
- **Special Incident Reports (SIR)**
 - Suicide Threats
 - Suicide Attempts (Including Completions)
 - Combined Threats + Attempts



Incident Report Form			
<small>Use this form to report accidents, injuries, medical situations, or student behavior incidents. (Incidents involving a crime or traffic incident should be reported directly to the Campus Public Safety office.) If possible, the report should be completed within 24 hours of the event. Submit completed forms to the President's Office.</small>			
INFORMATION ABOUT PERSON INVOLVED IN THE INCIDENT			
Full Name _____			
Home Address _____			
Designation _____			
Phone Numbers		Home _____	Cell _____ Work _____
INFORMATION ABOUT THE INCIDENT			
Date of Incident _____	Time _____	Police Notified <input type="checkbox"/> Yes <input type="checkbox"/> No	
Location of Incident _____			
Description of Incident (what happened, how it happened, factors leading to the event, etc.) Be as specific as possible (attached additional sheets if necessary)			

(Tarescavage, Glassmire, & Burchett, 2018)

Procedure & Analysis Plan *

Negative Binomial Regressions

- Predict “count” outcomes & control for time
- Use full sample
- # of predicted SIR events @
 $Z = 0.00, 0.75, \text{ \& } 1.50$

Relative Risk Ratios (RRRs)

- Clinically meaningful
- Multiple Elevations vs. No Elevations
 - Removed those with one elevation



Regression & Risk Ratio Results: Individual Predictors



Results

MMPI-2-RF IPTS Proxy Scale Univariate Negative Binomial Regression with Future Suicide-Related Outcomes (N = 751)

MMPI-2-RF IPTS Proxy Scales	Negative Binomial Regression					Predicted # of Events		
	<i>b</i>	<i>p</i>	IRR	X ²	<i>p</i>	Z = 0	Z = .75	Z = 1.5
Suicidal Threats								
RF-PB Perceived Burdensomeness	.64	<.001	2.016	21.36	<.001	0.3	0.5	0.8
RF-TB Thwarted Belongingness	.24	<.001	1.80	14.45	<.001	0.3	0.5	0.7
RF-AC Acquired Capability	.00	.984	0.997	0.00	.984	0.3	0.3	0.3
Suicidal Attempts								
RF-PB Perceived Burdensomeness	.66	.012	2.07	6.57	.010	0.0	0.0	0.1
RF-TB Thwarted Belongingness	.24	<.001	1.80	14.45	<.001	0.3	0.5	0.7
RF-AC Acquired Capability	.12	.591	1.15	0.29	.591	0.0	0.0	0.0
Combined Suicide Threats and Attempts								
RF-PB Perceived Burdensomeness	.65	<.001	2.033	23.70	<.001	0.3	0.5	0.9
RF-TB Thwarted Belongingness	.24	.036	1.80	4.47	.035	0.0	0.0	0.1
RF-AC Acquired Capability	.01	.915	1.01	0.01	.915	0.3	0.3	0.3

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Results

Relative Risk Ratios for MMPI-2-RF IPTS Proxy Scales in Predicting Future Suicide-Related Outcomes (N = 751)

SR	Scale	Cutoff (Z)	Risk if Elevated	Risk if Not Elevated	RRR	95% CI
Suicide Threats						
12.4%	RF-PB	.75	19.4%	8.5%	2.274*	(1.40, 3.69)
10.7%	RF-TB	.75	22.5%	8.3%	2.696*	(1.67, 4.35)
3.9%	RF-PB	1.5	24.1%	9.3%	2.601*	(1.31, 5.16)
3.1%	RF-TB	1.5	21.7%	9.5%	2.294*	(1.02, 5.14)
Suicide Attempts						
12.4%	RF-PB	.75	4.3%	2.3%	1.887	(0.64, 5.56)
10.7%	RF-TB	.75	6.3%	2.1%	2.996*	(1.11, 8.10)
3.9%	RF-PB	1.5	3.4%	2.5%	1.383	(0.19, 10.01)
3.1%	RF-TB	1.5	8.7%	2.3%	3.724	(0.91, 15.18)
Combined Suicide Threats and Attempts						
12.4%	RF-PB	.75	20.4%	9.6%	2.134*	(1.34, 3.39)
10.7%	RF-TB	.75	26.3%	9.1%	2.888*	(1.86, 4.48)
3.9%	RF-PB	1.5	24.1%	10.4%	2.324*	(1.17, 4.59)
3.1%	RF-TB	1.5	21.7%	10.6%	2.055	(0.92, 4.59)

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Regression & Risk Ratio Results: Combinations of Predictors



Regression Results: Multiple Predictors

	Suicide Threats	Suicide Attempts	Combined Suicide Threats & Attempts
3 Predictors	Only RF-PB	N.S.	Only RF-PB

Regression Results: Multiple Predictors

	Suicide Threats	Suicide Attempts	Combined Suicide Threats & Attempts
3 Predictors	Only RF-PB	N.S.	Only RF-PB
PB*AC Interaction	N.S.	N.S.	N.S.
PB*TB Interaction	YES	N.S.	YES
TB*AC Interaction	N.S.	N.S.	N.S.

Regression Results: Multiple Predictors

	Suicide Threats	Suicide Attempts	Combined Suicide Threats & Attempts
3 Predictors	Only RF-PB	N.S.	Only RF-PB
PB*AC Interaction	N.S.	N.S.	N.S.
PB*TB Interaction	YES	N.S.	YES
TB*AC Interaction	N.S.	N.S.	N.S.
3-Way Interaction	N.S.	N.S.	N.S.

RRR Results: Multiple Elevations

Relative Risk Ratios (RRRs) for Select Scale Combinations in Predicting Future Suicide-Related Outcomes (N = 751)

N	BR	SR	Scale 1 (Z Score Cutoff)	Scale 2 (Z Score Cutoff)	Risk if Elevated	Risk if Not Elevated	RRR	95% CI
680	10.3%	7.5%	RF-PB (.75)	RF-TB (.75)	27.5%	8.9%	3.083*	(1.85, 5.14)
690	9.9%	3.5%	RF-PB (1.5)	RF-TB (.75)	29.2%	9.2%	3.184*	(1.63, 6.21)
675	10.1%	3.0%	RF-PB (.75)	RF-TB (1.5)	25.0%	9.6%	2.599*	(1.17, 5.75)
535	9.0%	3.0%	RF-PB (.75)	RF-AC (.75)	29.4%	8.3%	3.543*	(1.61, 7.80)
538	8.2%	2.2%	RF-TB (.75)	RF-AC (.75)	33.3%	7.6%	4.383*	(1.87, 10.30)

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Discussion

Implications

- **Promise for use of RF-PB & RF-TB in suicide risk assessment**
- **Most hypotheses were supported**

Limitations & Future Directions

- **Z-Scores vs. T Scores**
- **Explore MMPI-3 Scale Content**

References & Acknowledgements

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