

# Psychological flexibility as a causal protective factor against predictors of suicide

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## Background and Aims

Suicide is a leading cause of death worldwide. The Integrated Motivational Volitional (IMV; see Fig. 1) model is a causal model of suicidal behaviour which provides a relatively comprehensive account of what proximal variables predict suicide. Motivational moderators in the IMV, such as burdensomeness and thwarted belonging and suicide resilience, are theorised to moderate risk of suicide behaviours on the central path.

Establishing causality is necessary to ensure intervention studies have a sound conceptual basis. Indeed, to establish causality, one must demonstrate that variation in psychological flexibility precedes variations in suicidality temporally by way of longitudinal or experimental studies. Few studies have yet tested whether psychological flexibility is associated with key constructs in contemporary suicide theory, like defeat and entrapment, in a causally protective way.

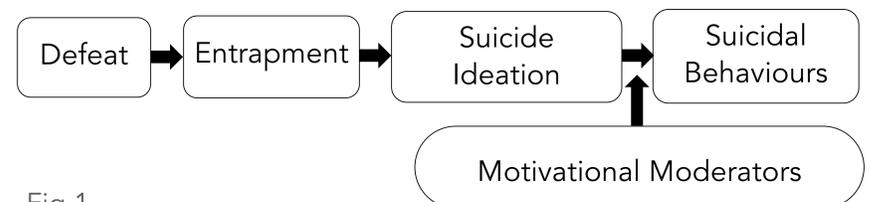


Fig 1.  
A simplified version of the IMV model.

Our key research question was:

*"Does naturally occurring change in ACT-based processes predict subsequent change in proximal suicide predictors?"*

## Method

### Design and Participants

Participants from the online general population were recruited using social media to complete a three-wave longitudinal survey, over two-months.

Participants completed measures of:

- Psychological flexibility (CompACT; behavioural awareness; openness to experience; valued action),
- Defeat and entrapment, suicide ideation, and binary suicide attempt (the central path of the IMV), and
- Thwarted belongingness and perceived burdensomeness, and suicide resilience (motivational moderators).

Sample sizes: Time 1 (T1;  $N = 1381$ ); Time 2 (T2, 1-month from T1;  $N = 509$ ); Time 3 (T3, 2-months from T1;  $N = 351$ ). Retention was low at 25.42% from T1 to T3.

Table 1. Spearman's bivariate and point bi-serial correlations between psychological flexibility and later suicide predictors on the central path of the IMV model.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. BA <sub>T1</sub>	1								
2. VA <sub>T1</sub>	.41*	1							
3. OE <sub>T1</sub>	.35*	.51*	1						
4. DEF/ENT <sub>T2</sub>	-.52*	-.45*	-.38*	1					
5. SI <sub>T2</sub>	-.34*	-.32*	-.24*	.64*	1				
6. SA <sub>T2</sub>	-.18*	.16*	.11	.38*	-.49*	1			
7. DEF/ENT <sub>T3</sub>	-.49*	-.50*	-.41*	.81*	.59*	-.32*	1		
8. SI <sub>T3</sub>	-.32*	-.35*	-.24*	.57*	.78*	-.42*	.67*	1	
9. SA <sub>T3</sub>	-.10	-.16*	-.11	-.28*	.37*	.37*	.35*	.46*	1

\* $p < .001$ . BA = Behavioural Awareness; VA = Valued Action; OE = Openness to Experience; DEF/ENT = Defeat and Entrapment; SI = Suicidal Ideation; SA = Suicide Attempt (Yes/No)

## Results

### Assumption Checks

Autocorrelations were run to determine construct stability over-time. After correction, all variables correlated with their later time-point above our *a priori* stability criterion ( $r = .70$ ), bar valued action T1–T3 ( $r = .58$ ), openness to experience from T1–T2 ( $r = .62$ ) and from T2–T3 ( $r = .65$ ), and suicide ideation T1–T3 ( $r = .62$ ).

### Inferential Statistics

We initially planned to use latent modelling – specifically, a random-intercept cross-lagged panel model – to determine lagged associations between psychological flexibility and proximal predictors of suicide. This was not suitable given the non-normality, instability of the constructs, and high attrition and missing data rates.

### Zero-Order Correlations

T1 psychological flexibility components were stronger correlates with later suicide ideation, defeat and entrapment than suicide attempt (Table 1). Psychological flexibility was also significantly correlated with all motivational moderators ( $r = -.29$  to  $-.61$ ).

### Exploratory Hierarchical Regression Models

We tested whether T1 components of psychological flexibility predicted T2 suicide outcomes on the central path of the IMV, controlling for autocorrelation at T1.

- T2 Suicide Ideation: No psychological flexibility component was a significant predictor (step change:  $R^2 = .00$ ;  $p = .580$ ).
- T2 Defeat/Entrapment: Only behavioural awareness was a significant predictor (step change:  $R^2 = .01$ ;  $p = .046$ , coefficient:  $\beta = -.08$ ).
- T2 Suicide Attempt (Yes/No): Only behavioural awareness was a significant predictor (step change:  $R^2 = .04$ ;  $p < .001$ , coefficient:  $\beta = -.04$ ).

## Discussion

- As the constructs remained stable over-time, we could not analyse whether psychological flexibility is causally related to (or precedes) suicide outcomes identified by the IMV model reliably. Indeed, it is possible that these constructs do not change without intervention.
- Promisingly, baseline psychological flexibility was negatively correlated with later suicide predictors, warranting further investigation.
- Before establishing a strong theoretical basis for the causal role of psychological flexibility, we need to address measurement issues, consider time invariance and logistical recruitment challenges, and explore the boundaries for when naturally-occurring change is observed.
- We recommend future studies use ecological momentary assessment and/or experiments, and measure life events, to capture perhaps more nuanced variations that may be environmentally influenced.