

## INTRODUCTION

- ◆ Suicide and self-harm have emerged as significant public health problems. Veterans of all genders and ages are at greater risk of suicide than their non-Veteran counterparts.<sup>1</sup>
- ◆ A recent study found that the relationship between emotional reactivity (ER) and problem solving, as defined by executive functioning, predicted suicide attempts among adolescents and adults.<sup>2</sup>
- ◆ Social problem solving (SPS) is the cognitive-behavioral process by which individuals attempt to identify, discover, and create adaptive means of coping with stressful problems in living.<sup>3</sup>
- ◆ The present study seeks to determine whether SPS interacts with ER in predicting suicidal thoughts and self-harm behaviors in Veterans.

## HYPOTHESES

1. Both ER and SPS will significantly predict suicidal ideation and deliberate self-harm
2. SPS will moderate the following relationships:
  - (a) ER and suicide ideation
  - (b) ER and deliberate self-harm

## METHODS

- ◆ 172 individuals were included in this study.
- ◆ Participants were Veterans of the US Military who were recruited for the study from local organizations, including the Philadelphia Veterans Multi-Service Center and the Greater Philadelphia Veterans Network.
- ◆ In order to participate in the study, individuals were required to be (a) a veteran of the U.S. military, (b) 18 years of age or older, (c) able to speak English fluently. There were no exclusionary criteria.
- ◆ Assessments were conducted via an anonymous online Qualtrics survey.
- ◆ Participants completed the following measures: demographic form, Social Problem-Solving Inventory – Revised (SPSI-R), Emotional Reactivity Scale (ERS), PTSD Checklist for DSM-5 (PCL-5), Deliberate Self-Harm Inventory (DSHI), and Beck Scale for Suicide Ideation (BSS).
- ◆ At completion of the study, a list of emergency resources was available to download for all participants.

## RESULTS

Table 1. Demographic Characteristics of Participants

Variable	M	SD
Age	38.03	11.65
Variable	Frequency	Percent
Gender		
Male	140	81.4
Female	32	18.6
Race		
Asian	4	2.3
Black	22	12.8
Hispanic/Latino	16	9.3
White/Caucasian	118	68.6
Other	5	2.9
Multiple Race	7	4.1
Combat		
Yes	83	48.3
No	89	51.7

Note. N = 172

Figure 1. Campaigns Served

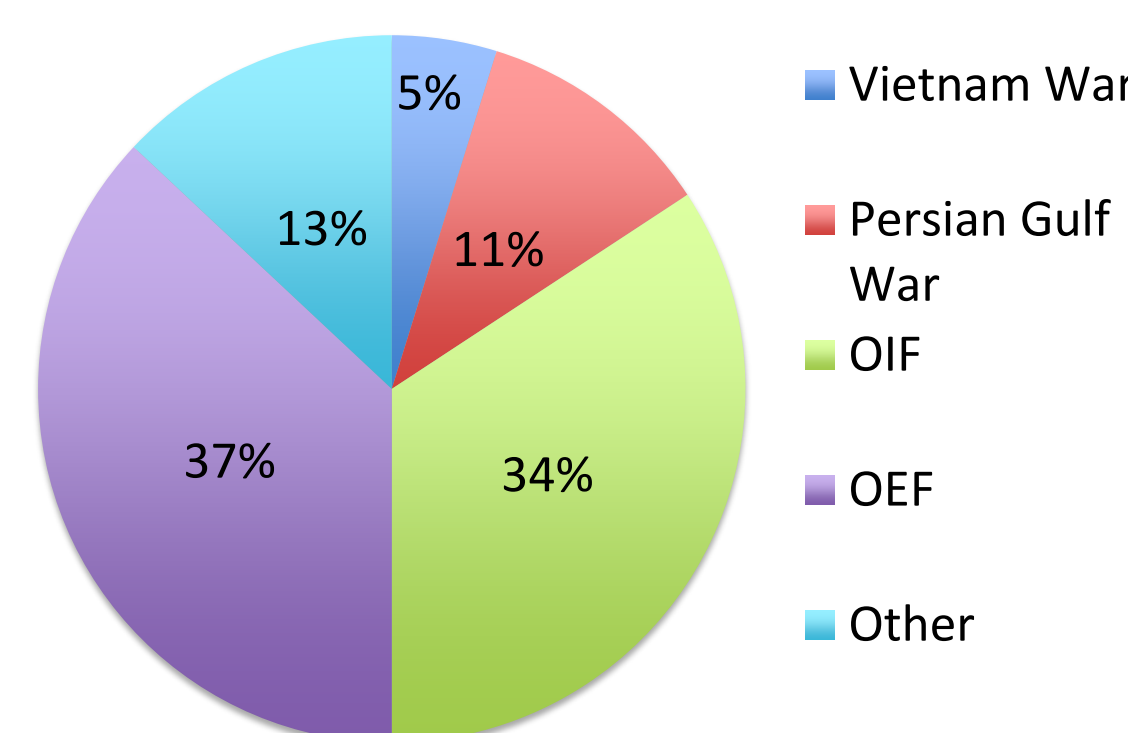


Figure 2. Branches Served

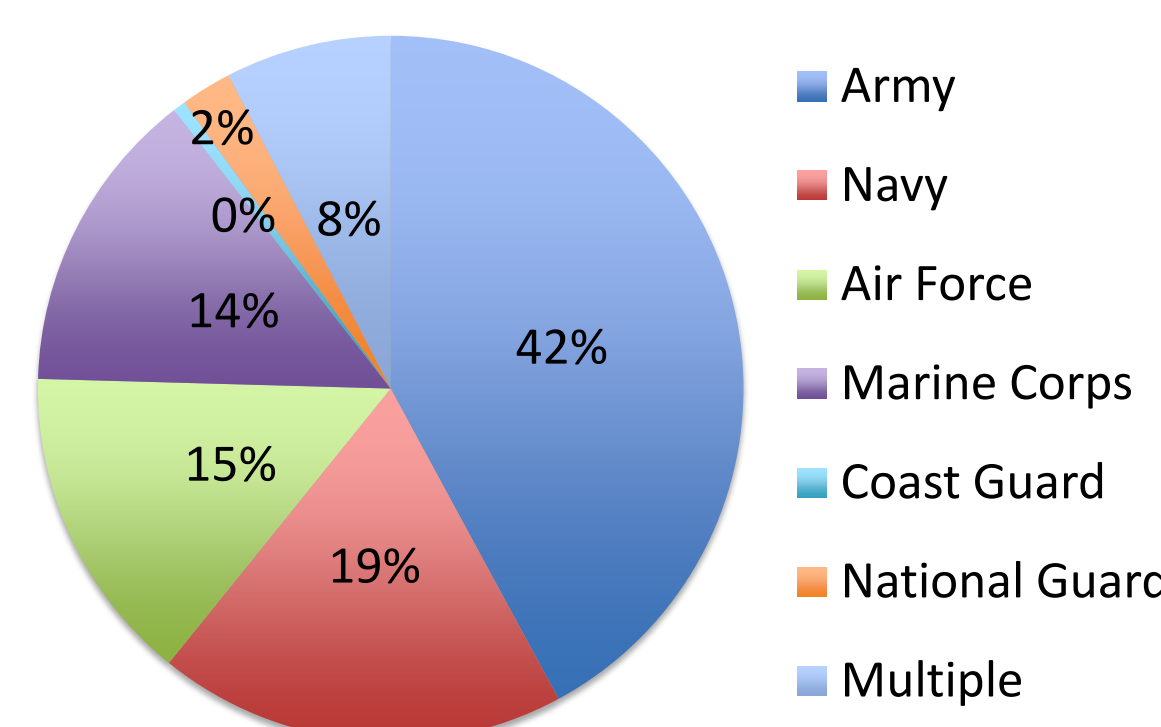


Table 2. Means and Standard Deviations for, and Correlations Among, Suicide Ideation, Deliberate Self-Harm, Emotion Reactivity, Social Problem Solving, and Posttraumatic Stress Symptomatology

Measure	Mean (SD)	1	2	3	4	5
1. BSS	1.32 (3.92)	---				
2. DSHI	1.69 (3.11)	.31**	---			
3. ERS	27.98 (20.51)	.37**	.34**	---		
4. SPSI-R	13.74 (3.03)	-.32**	-.16**	-.56**	---	
5. PCL-5	24.40 (21.32)	.32**	.43**	.62**	-.28**	---

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

Table 3. Results from Hierarchical Regression Analysis with Suicide ideation as the Dependent Variable, Posttraumatic Stress Symptoms as a Covariate, and Emotion Reactivity, Social Problem Solving, and Their Interaction as Predictors

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard Error	R <sup>2</sup> change	F change	Signif. F change
1	.316	.095	.095	3.73	.100	18.91	<.001
2	.147	.137	.137	3.64	.047	9.34	.003
3	.171	.156	.156	3.60	.023	4.75	.031
4	.194	.175	.175	3.56	.024	4.88	.029

Notes. Model 1 = constant + PCL; Model 2 = constant + PCL + ERS; Model 3 = constant + PCL + ERS + SPSI-R; Model 4 = constant + PCL + ERS + SPSI-R + ERS x SPSI-R.

Table 4. Results from Hierarchical Regression Analysis with Deliberate Self-Harm as the Dependent Variable, Posttraumatic Stress Symptoms as a Covariate, and Emotion Reactivity, Social Problem Solving, and Their Interaction as Predictors

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard Error	R <sup>2</sup> change	F change	Signif. F change
1	.434	.183	.183	2.82	.188	39.41	<.001
2	.444	.197	.188	2.82	.185	9.34	.175
3	.444	.197	.188	2.82	.000	0.23	.879
4	.465	.216	.197	2.79	.019	4.07	.045

Notes. Model 1 = constant + PCL; Model 2 = constant + PCL + ERS; Model 3 = constant + PCL + ERS + SPSI-R; Model 4 = constant + PCL + ERS + SPSI-R + ERS x SPSI-R.

Figure 3. Interaction Between Emotion Reactivity and Social Problem Solving in Predicting Suicide Ideation While Controlling for Posttraumatic Stress Symptomatology

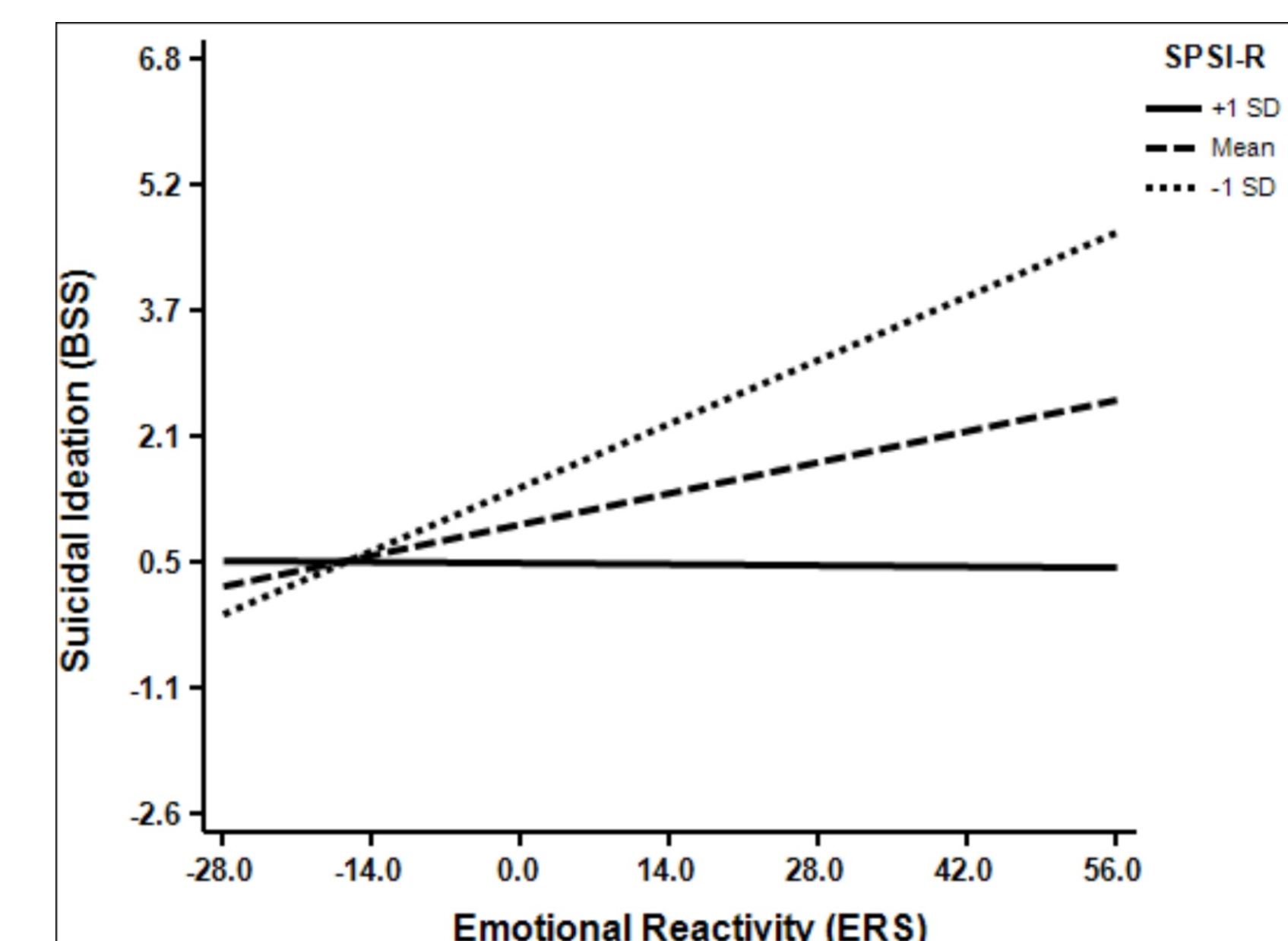
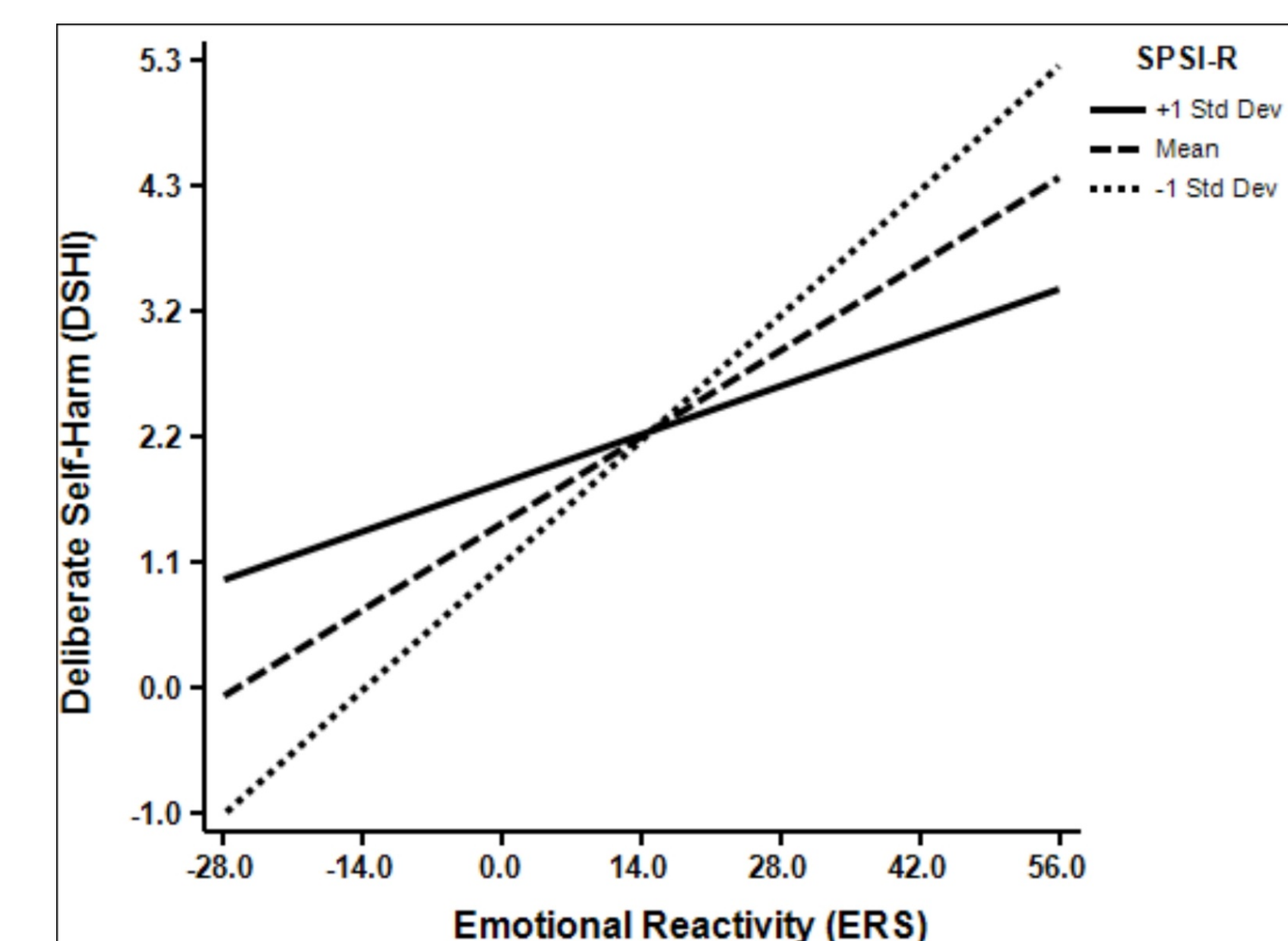


Figure 4. Interaction Between Emotion Reactivity and Social Problem Solving in Predicting Deliberate Self-Harm While Controlling for Posttraumatic Stress Symptomatology



## DISCUSSION

- ◆ Emotion reactivity (ER) and social problem solving (SPS) are independently associated with both suicide ideation and deliberate self-harm in a sample of U.S. Veterans.
- ◆ SPS serves as a moderator of ER and both suicide ideation and self-harm after accounting for posttraumatic stress symptomatology as a covariate.
- ◆ These results expand our understanding of the relationship between problem solving and suicidality, as it uses a measure of *social* problem solving rather than a neuropsychological measure of executive functioning.
- ◆ Our findings support a social problem-solving model of suicidality in which chronic stress, heightened emotional reactivity in response to such stress, and impaired social problem solving each play an important role in the development of suicidal thoughts and behaviors.
- ◆ The social problem-solving conceptualization of suicidality may be particularly relevant to Veteran populations, who face a number of unique stressors.

## REFERENCES

1. Kaplan, M. S., McFarland, B. H., Huguet, N., & Valenstein, M. (2012). Suicide risk and precipitating circumstances among young, middle-aged, and older male veterans. *American Journal of Public Health, 102*(S1), S131-S137.
2. Dour, H. J., Cha, C. B., & Nock, M. K. (2011). Evidence for an emotion-cognition interaction in the statistical prediction of suicide attempts. *Behaviour Research and Therapy, 49*(4), 294-298.
3. Nezu, A. M., Nezu, C. M., & D'Zurilla, T. J. (2013). *Problem-Solving Therapy: A Treatment Manual*. New York, NY: Springer Publishing Company.