Supplemental Material

Study 1

Controlling for Age

Supplemental analyses were conducted to control for age in both regression models. For the model predicting past-month suicide ideation assessed at baseline, age was not a significant predictor. The pattern of results generally was consistent, except that the marginally significant main effect of $NFA_{approach}$ became nonsignificant. Age was a not a significant predictor in the regression predicting 9-month suicide ideation, and the pattern of results stayed the same.

Controlling for Race

Supplemental analyses were conducted to control for race (0= White, 1= minority race) in both regression models. For the model predicting past-month suicide ideation assessed at baseline, race was a significant negative predictor, but the pattern of results stayed the same, except that the marginally significant main effect of $NFA_{approach}$ became nonsignificant. Race was a not a significant predictor in the regression predicting 9-month suicide ideation, and the pattern of results stayed the same.

Summary of Results

Consistent with hypotheses, analyses revealed that higher levels of NFA_{avoid} and rumination were associated with higher past-month suicide ideation assessed at baseline, whereas higher levels of $NFA_{approach}$ were associated with lower past-month suicide ideation. As hypothesized, NFA_{avoid} was significantly associated with more past-month and follow-up suicide ideation among girls with high but not low levels of rumination. Contrary to hypotheses, the interaction between $NFA_{approach}$ x Rumination did not significantly predict suicide ideation concurrently or over time. Adjusting for age and race had little impact on these results.

Study 2

Eligibility Criteria

A sample of girls with increased risk for internalizing psychopathology and SITBs was recruited from local community clinics, inpatient and outpatient units, high schools, and the general community using flyers and mass email advertisements in the southeast region of the United States. Participants were recruited as part of a larger longitudinal study investigating responses to stress and risk for psychopathology and SITBs in adolescent girls (e.g., Pelletier-Baldelli et al., 2023). Eligibility criteria required girls to have a history of mental health concerns over the past 2 years, defined as having significant symptoms or a prior diagnosis of, or prior treatment for, mood or anxiety disorders, disruptive behavior disorders, or substance use disorders. Participants recruited from inpatient facilities were not enrolled until two months following discharge from the unit. Girls exhibiting any indication or history of active psychosis, intellectual disability disorder or any other developmental disorder, or lack of ability to speak/read English were excluded. A preliminary phone interview with adolescents' caregivers was conducted to determine the presence of mental health concerns, including whether adolescents had received a prior diagnosis, prior treatment, or experienced prior symptoms.

Controlling for Age

Supplemental analyses were conducted to control for age in both regression models. For the models predicting past-month and follow-up suicide ideation, lifetime suicide behaviors assessed at baseline, and lifetime NSSI assessed at baseline, age was a significant predictor such that older age predicted more past-month and follow-up suicide ideation as well as more lifetime suicide behaviors and NSSI, but the pattern of results generally was consistent. The only difference was that in the model assessing lifetime NSSI, the significant effect of $NFA_{approach}$

became marginally significant. For the models predicting follow-up suicide behaviors and follow-up NSSI, age was not a significant predictor, and the pattern of results stayed the same.

Controlling for Race

Supplemental analyses were conducted to control for race (0= White, 1= minority race) in both regression models. For all of the models across suicide ideation, suicide behaviors, and NSSI, race was not a significant predictor, and the pattern of results stayed the same.

Summary of Results

Consistent with hypothesis, analyses revealed that higher levels of NFA_{avoid} were associated with higher levels of past-month suicide ideation, lifetime suicidal behaviors, lifetime NSSI, and 8-month follow-up NSSI, whereas higher levels of $NFA_{approach}$ would be associated with lower levels of past-month suicide ideation, lifetime suicidal behaviors, and lifetime NSSI. Higher levels of rumination were associated with higher levels of past-month suicide ideation and lifetime suicidal behaviors. Also as expected, NFA_{avoid} was significantly associated with more past-month suicide ideation among girls with high levels of rumination. Supporting our hypotheses, $NFA_{approach}$ was associated with less past-month suicide ideation among girls with high levels of rumination; contrary to hypotheses, however, the protective effect of $NFA_{approach}$ against lifetime NSSI was significant among girls with low rather than high levels of rumination. Adjusting for age and race had little impact on these results.

Suicide Behaviors as a Continuous Variable

As the rates of follow-up suicide behaviors were low in Study 2, we ran supplemental analyses with suicide behaviors as a continuous variable to provide more variability to detect this low prevalence behavior. At baseline, questions assessed lifetime presence of three suicidal behaviors; at the 8-month follow-up, questions assessed presence of three suicidal behaviors in

recent months. Each item was coded 0 (*No*) or 1 (*Yes*). The three items were summed to create separate continuous suicidal behaviors variables at baseline and 8-month follow-up; scores ranged from 0 to 3, with higher scores indicating more suicidal behaviors.

Two hierarchical linear regression analyses were conducted to examine the independent and interactive contributions of NFA (NFA_{avoid} and $NFA_{approach}$) and rumination to lifetime and 8-month follow-up suicidal behaviors. As hypothesized, the regression predicting lifetime suicidal behaviors assessed at baseline revealed significant positive main effects of NFA_{avoid} and rumination and a significant negative main effect of $NFA_{approach}$ (see Supplemental Table 4). Contrary to hypotheses, the remaining effects were nonsignificant. As hypothesized, the regression predicting 8-month follow-up suicidal behaviors revealed a significant NFA_{avoid} x Rumination interaction (see Supplemental Table 4). Consistent with expectations, simple slope analyses revealed that NFA_{avoid} significantly predicted more 8-month follow-up suicidal behaviors in girls with high, B = 0.09, *SE* = 0.04, $t(223) = 2.03$, $p = 0.043$, but not low, B = -0.04, *SE* = 0.04, $t(223) = 0.96$, $p = 0.337$, levels of rumination (see Supplemental Figure 1). RoS tests indicated that a significant positive association between NFA_{avoid} and follow-up suicide behaviors emerged at $\geq .60$ *SD* of rumination. Contrary to hypotheses, the remaining effects were nonsignificant (see Supplemental Table 4).

Mediation by Depression

Study 1 Method

Measure

Depression. Baseline depressive symptoms were assessed with the Short Mood and Feelings Questionnaire (SMFQ: Angold et al., 1995). The SMFQ is a shortened version of the Mood and Feelings questionnaire (Costello & Angold, 1988) that assesses symptoms over the

past two weeks using a 4-point Likert scale from 1 (not at all) to 4 (very much). Scores were computed as the mean of the items, with higher scores indicating more depressive symptoms (α = .94). The SMFQ has been shown to be a valid and reliable assessment of depressive symptoms in adolescents (Messer et al., 1995).

Study 2 Method

Measure

Depression. Baseline depressive symptoms were assessed with the Mood and Feelings Questionnaire (MFQ; Costello & Angold, 1988). The MFQ is a 33-item measure of depressive symptoms that assesses symptoms over the past two weeks using a 3-point Likert scale from 0 (not true) to 2 (mostly true). Scores were computed using 29 items from the full measure (α = .93); four items assessing for suicidal ideation were excluded to avoid overlap with the SITBI measure. Scores were computed as the mean of the items, with higher scores indicating more depressive symptoms (α = .93). The MFQ has been shown to be a valid and reliable assessment of depressive symptoms in children and adolescents (Kent et al., 1997).

Data Analysis Plan

Analyses were conducted to examine whether the main effect of Need for Approval (NFA) or the NFA x Rumination interactions on SITBs were accounted for by depression. If the original set of analyses revealed a significant main effect of NFA on SITBs, we examined simple mediation; if the original set of analyses revealed a significant NFA x Rumination interaction predicting SITBs, we examined mediated moderation.

To demonstrate mediation, the magnitude of the overall effect of NFA on the dependent SITBs must be explained by depression, reflected in a significant indirect effect. Several conditions must be satisfied to demonstrate mediated moderation (Muller et al., 2005). Condition

1 requires that the magnitude of the overall effect of NFA on SITBs depends on rumination; Condition 2 requires that depression accounts for the overall moderation effect. For this to be the case, either the effect of NFA on depression depends on rumination and the average partial effect of depression on SITBs is significant (non-zero) and/or the partial effect of depression on SITBs depends on rumination and the average effect of NFA on depression is significant (non-zero). As a result, the moderation of the residual direct effect of NFA on SITBs is reduced compared to the overall moderated effect (Muller et al., 2005). To investigate Condition 2, two sets of regression analyses were conducted. The first regression examined whether the path from NFA to depression was moderated by rumination (Condition 2a). The second regression examined whether depression or the Depression x Rumination interaction predicted SITBs after adjusting for the main and interactive effects of NFA and rumination (and baseline SITBs if it was a longitudinal analysis; Condition 2b), and whether the overall interactive effect of NFA and rumination on SITBs was reduced upon inclusion of depression and the Depression x Rumination interaction (Condition 2c).

Study 1

NFA and Rumination Predicting Depression

First, hierarchical multiple regression analyses were conducted to examine whether W_1 rumination moderated the associations between W_1 NFA and W_1 depression (Condition 2a; Supplemental Table 5). These analyses revealed a significant positive main effect of W_1 NFA_{avoid} and W_1 rumination on depression, and a marginally significant negative main effect of W_1 $NFA_{approach}$ on depression. Rumination did not moderate the effect of $NFA_{approach,}$ but it did significantly moderate the effect of NFA_{avoid} on depression, such that NFA_{avoid} predicted more

depression in girls with high (B = 0.43, *SE* = 0.07, *t*(84) = 6.07, *p* < .001), but not low (B = -0.04, *SE* = 0.09, *t*(84) = -0.43, *p* = .67), levels of rumination (Supplemental Figure 2).

Suicide Ideation

Our original analyses revealed a significant NFA_{avoid} x Rumination interaction predicting past-month SIQ suicide ideation assessed at baseline as well as follow-up MINI suicide ideation. The interaction between $NFA_{approach}$ x Rumination was not significant in predicting either outcome. Because rumination did moderate the effect of NFA_{avoid} on depression, we ran two mediated-moderation analyses to examine whether depression or the Depression x Rumination interaction mediated the effect of NFA_{avoid} x Rumination on past-month and follow-up suicide ideation.

Moderated-mediation model for NFA_{avoid} and past-month and follow-up suicide ideation. Hierarchical multiple regression analyses were conducted to examine whether depression or the Depression x Rumination interaction predicted past-month or follow-up suicide ideation after adjusting for the main and interactive effects of NFA_{avoid}, $NFA_{approach}$, and rumination (Condition 2b; Supplemental Table 6).

For past-month suicide ideation, analyses revealed a nonsignificant main effect of depression and a significant Depression x Rumination interaction (see Supplemental Table 6; left panel; Condition 2b). The residual effect of the NFA_{avoid} x Rumination interaction on past-month suicide ideation was smaller than the overall moderated effect (Condition 2c) and was no longer significant after adjusting for depression and the Depression x Rumination interaction, suggesting that the Depression x Rumination interaction mediated the interactive contribution of NFA_{avoid} and rumination to past-month suicide ideation. We examined two indexes to quantify the strength of mediation within the high rumination group. First, we found a nonsignificant

indirect effect (IE = 0.11, $Z = 0.24$, $p = .81$; Sobel, 1986; Soper et al., 2024). Second, the effect proportion (indirect effect/total effect; Shrout & Bolger, 2002) revealed that the Depression x Rumination interaction accounted for 84.6% of the total effect of NFA_{avoid} x Rumination on subsequent past-month suicide ideation within the high rumination group.

For follow-up suicide ideation, analyses revealed a nonsignificant main effect of depression and a nonsignificant Depression x Rumination interaction (see Supplemental Table 6; right panel).

Summary. Evidence was obtained for the moderating influence of rumination on the association between NFA_{avoid} and past-month suicide ideation assessed at baseline, and the moderating influence of rumination on the association between NFA_{avoid} and depression. In both cases, the paths were positive and significant in adolescents with high, but not low, levels of rumination. Depression partially accounted for the contribution of NFA_{avoid} x Rumination to past-month suicide ideation in adolescents, although the indirect effect was nonsignificant within the high rumination group. Additionally, evidence was obtained for the moderating influence of rumination on the association between NFA_{avoid} and follow-up suicide ideation; this path was significant in adolescents with high, but not low, levels of rumination. This interaction was not accounted for by depression.

Study 2

NFA and Rumination Predicting Depression

First, hierarchical multiple regression analyses were conducted to examine whether W_1 rumination moderated the associations between W_1 NFA and W_1 depression (Condition 2a; (Supplemental Table 7). These analyses revealed a significant positive main effect of W_1 NFA_{avoid} and W_1 rumination on depression, and a significant negative main effect of W_1

$NFA_{approach}$ on depression. Rumination did not moderate the effect of $NFA_{avoid,}$ but it did significantly moderate the effect of $NFA_{approach}$ on depression, such that $NFA_{approach}$ predicted less depression in adolescents with high (B = -0.39, *SE* = 0.11, *t*(223) = -3.54, *p* < .001) but not low (B = -0.08, *SE* = 0.11, *t*(223) = 0.69, *p* = 0.49), levels of rumination (Supplemental Figure 3).

Baseline Suicide Ideation

Our original analyses revealed a significant NFA_{avoid} x Rumination interaction and a significant $NFA_{approach}$ x Rumination interaction predicting past-month suicide ideation assessed at baseline. Because rumination did not moderate the effect of NFA_{avoid} on depression, we ran a simple mediation test to examine whether depression mediated the effects of NFA_{avoid} on past-month suicide ideation (see Supplemental Table 8). Because rumination did moderate the effect of $NFA_{approach}$ depression, we ran a mediated-moderation test to examine whether depression or the Depression x Rumination interaction mediated the effect of $NFA_{approach}$ x Rumination on past-month suicide ideation (see Supplemental Table 8).

Simple mediation model for NFA_{avoid} and past-month suicide ideation. Hierarchical multiple regression analyses were conducted to examine whether depression mediated the association between W_1 NFA_{avoid} and past-month suicide ideation assessed at baseline (Supplemental Table 8). These analyses revealed a significant main effect of depression on suicide ideation (see Supplemental Table 8). The residual effect of NFA_{avoid} on past-month suicide ideation assessed at baseline was smaller than the original effect, suggesting that depression partially mediated the contributions of NFA_{avoid} to past-month suicide ideation. The indirect effect of NFA_{avoid} on past-month suicide ideation via depression was significant (IE = 3.52, *Z* = 3.78, *p* < .001) and the effect proportion revealed that depression accounted for 58.5% of the total effect of NFA_{avoid} on past-month suicide ideation.

Moderated-mediation model for $NFA_{approach}$ and past-month suicide ideation. Hierarchical multiple regression analyses were conducted to examine whether depression or the Depression x Rumination interaction predicted past-month suicide ideation after adjusting for the main and interactive effects of NFA_{avoid}, $NFA_{approach}$, and rumination (Condition 2b; Supplemental Table 9). These analyses revealed a significant main effect of depression and a nonsignificant Depression x Rumination interaction. After adjusting for depression and the Depression x Rumination interaction, the $NFA_{approach}$ x Rumination interaction on past-month suicide ideation was smaller than the overall moderated effect (Condition 2c) and was no longer marginally significant, suggesting that depression mediated the interactive contribution of $NFA_{approach}$ and rumination to past-month suicide ideation. We found a significant indirect effect within the high rumination group (IE = -4.40, Z = -3.39, $p < .001$). The effect proportion revealed that depression accounted for 71.2% of the total effect of $NFA_{approach}$ x Rumination on subsequent past-month suicide ideation within the high rumination group.

Baseline Suicide Behaviors

Our original analyses revealed a significant main effect of NFA_{avoid} and $NFA_{approach}$ on lifetime suicide behaviors assessed at baseline. The interactions between NFA x Rumination were not significant in predicting lifetime suicide behaviors. Consequently, we ran a simple mediation analysis to examine whether depression mediated the effects of NFA_{avoid} and $NFA_{approach}$ on lifetime suicide behaviors.

Simple mediation model for NFA_{avoid} and $NFA_{approach}$ and lifetime suicide behaviors. Hierarchical multiple regression analyses were conducted to examine whether depression mediated the associations between W_1 NFA_{avoid} and W_1 $NFA_{approach}$ and lifetime suicide behaviors assessed at baseline (see Supplemental Table 10). These analyses revealed a significant main

effect of depression on lifetime suicide behaviors. The residual effects of NFA_{avoid} and $NFA_{approach}$ on lifetime suicide behaviors assessed at baseline were smaller than the original effects, suggesting that depression partially mediated the contributions of NFA_{avoid} and $NFA_{approach}$ to lifetime suicide behaviors. For NFA_{avoid}, we found a significant indirect effect (IE = 0.27, Z = 2.83, $p < .01$). The effect proportion revealed that depression accounted for 30.7% of the total effect of NFA_{avoid} on lifetime suicide behaviors. For $NFA_{approach}$, we found a significant indirect effect (IE = -0.17, Z = -2.33, $p < .05$). The effect proportion revealed that depression accounted for 22.1% of the total effect of $NFA_{approach}$ on lifetime suicide behaviors.

NSSI

Our original analyses revealed a significant main effect of NFA_{avoid} on lifetime NSSI assessed at baseline and follow-up NSSI, and a significant $NFA_{approach}$ x Rumination interaction predicting lifetime NSSI. The interaction between NFA_{avoid} x Rumination was not significant in predicting either NSSI outcome. Consequently, we ran simple mediation analyses to examine whether depression mediated the effect of NFA_{avoid} on lifetime NSSI and follow-up NSSI, and a mediated-moderation analysis to examine whether depression or the Depression x Rumination mediated the effect of $NFA_{approach}$ x Rumination on lifetime NSSI.

Simple mediation models for NFA_{avoid} and lifetime and follow-up NSSI. Hierarchical multiple regression analyses were conducted to examine whether depression mediated the associations between W_1 NFA_{avoid} and lifetime NSSI assessed at baseline and follow-up NSSI.

For lifetime NSSI, these analyses revealed a significant main effect of depression (see Supplemental Table 11; left panel). The residual effect of NFA_{avoid} on lifetime NSSI was smaller than the original effect, suggesting that depression partially mediated the contribution of NFA_{avoid} to lifetime NSSI. The indirect effect of NFA_{avoid} on lifetime NSSI via depression was

nonsignificant (IE = 0.11, $Z = 1.82$, $p = .06$). The effect proportion revealed that depression accounted for 21.2% of the total effect of NFA_{avoid} on lifetime NSSI in young girls.

For follow-up NSSI, these analyses revealed a significant main effect of depression (see Supplemental Table 11; right panel). The residual effect of the NFA_{avoid} on follow-up NSSI was smaller than the original effect and was marginally significant, suggesting that depression partially mediated the contribution of NFA_{avoid} to follow-up NSSI. The indirect effect of NFA_{avoid} on follow-up NSSI via depression was significant (IE = 0.24, $Z = 2.48$, $p < .05$) and the effect proportion revealed that depression accounted for 28.9% of the total effect of NFA_{avoid} on follow-up NSSI.

Moderated-mediation model for $NFA_{approach}$ lifetime NSSI. Hierarchical multiple regression analyses were conducted to examine whether depression or the Depression x Rumination interaction predicted lifetime NSSI assessed at baseline after adjusting for the main and interactive effects of NFA_{avoid}, $NFA_{approach}$, and rumination (Condition 2b; Supplemental Table 12). These analyses revealed a significant main effect of depression and a nonsignificant Depression x Rumination interaction. The residual effect of the $NFA_{approach}$ x Rumination interaction on lifetime NSSI remained marginally significant, suggesting that depression did not mediate the interactive contribution of $NFA_{approach}$ x Rumination to lifetime NSSI (Condition 2c).

Summary. Evidence was obtained for the moderating influence of rumination on the association between NFA_{avoid} and $NFA_{approach}$ and SITBs, and the moderating influence of rumination on the association between $NFA_{approach}$ and depression. For NFA_{avoid} and past-month suicide ideation assessed at baseline, this path was positive and significant in adolescents with high, but not low, levels of rumination. For $NFA_{approach}$ and past-month suicide ideation, this path was negative and significant in adolescents with high, but not low, levels of rumination. For

$NFA_{approach}$ and lifetime NSSI assessed at baseline, this path was positive and significant in adolescents with *low*, but not high, levels of rumination. Finally, for $NFA_{approach}$ and depression, this path was negative and significant in adolescence with high, but not low, levels of rumination.

Depression partially mediated the effects of NFA_{avoid} on past-month suicide ideation assessed at baseline, lifetime NSSI assessed at baseline, and follow-up NSSI, and partially mediated the effects of NFA_{avoid} and $NFA_{approach}$ on lifetime suicide behaviors assessed at baseline. Depression mediated the interactive contribution of $NFA_{approach}$ x Rumination to past-month suicide ideation assessed at baseline among girls with high, but not low levels of rumination. Depression did not mediate the interactive contribution of $NFA_{approach}$ x Rumination to lifetime NSSI assessed at baseline. $NFA_{avoid,}$ x Rumination did not significantly predict depression, and there were no significant interactions predicting follow-up suicide ideation.

References

Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., & Silver, D. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research, 5,* 237– 249.

Costello, E. J., & Angold, A. (1988). Scales to assess child and adolescent depression: checklists, screens, and nets. *Journal of the American Academy of Child & Adolescent Psychiatry*, *27*(6), 726-737.

Kent, L., Vostanis, P., & Feehan, C. (1997). Detection of major and minor depression in children and adolescents: evaluation of the Mood and Feelings Questionnaire. *Journal of Child Psychology and Psychiatry*, *38*(5), 565-573.

Messer, S. C., Angold, A., Costello, E. J., Loeber, R., Van Kammen, W., & Stouthamer-Loeber, M. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents: Factor composition and structure across development. *International Journal of Methods in Psychiatric Research*, *5*, 251-262.

Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, *89*(6), 852-863.

Pelletier-Baldelli, A., Sheridan, M. A., Glier, S., Rodriguez-Thompson, A., Gates, K. M., Martin, S., ... & Miller, A. B. (2023). Social goals in girls transitioning to adolescence: associations with psychopathology and brain network connectivity. *Social Cognitive and Affective Neuroscience*, *18*(1), 1-12.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological Methods*, *7*(4), 422-445.

Sobel, M. E. (1986). Some new results on indirect effects and their standard errors in covariance structure models. *Sociological Methodology*, *16*, 159-186.

Soper, D. S. (2024). Sobel test calculator for the significance of mediation [Software]. *Free Statistics Calculators*. https://www.danielsoper.com/statcalc,

Table 1

Study 1: Descriptive Statistics, Psychometric Information, and Correlations among the Study Variables

Variable	1	2	3	4	5	6	7
1. NFA_{avoid}	--	0.57***	0.42***	0.35***	0.23*	0.14	0.45***
2. $NFA_{approach}$		--	0.21*	0.06	0.12	0.00	0.13
3. Rumination			--	0.41***	0.45***	0.21^	0.66***
4. Baseline SIQ-Jr. Suicide Ideation				--	0.64***	0.21^	0.59***
5. Baseline MINI Suicide Ideation					--	0.04	0.46***
6. Follow-Up MINI Suicide Ideation						--	0.33**
7. Depression				--			--
N	90	90	90	89	90	87	90
Mean	1.83	2.93	2.39	6.17	0.18	0.09	1.68
SD	.92	.98	.70	11.13	.55	.39	.65
Range	1-4	1-5	1.20-4	0-70	0-2	0-2	1-4
α	0.92	0.91	0.82	0.97	--	--	0.94

^$p < .10$. *$p < .05$. **$p < .01$. **$p < .001$.

Note: Baseline suicide ideation was assessed using the SIQ-Jr. Follow-up suicide ideation was assessed using the MINI while controlling for baseline MINI suicide ideation. NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$ MINI= Mini International Neuropsychiatric Interview.

Table 2

Study 2: Descriptive Statistics and Psychometric Information for the Measures

Variable	$N_{original}$	$N_{imputed}$	*M*	*SD*	Range	α	Percent Endorsed
NFA_{avoid}	226	229	2.00	--	1-5	0.91	--
$NFA_{approach}$	226	229	2.87	--	1-5	0.90	--
Rumination	222	229	2.20	--	1-4	0.79	--
Baseline Suicide Ideation	226	229	10.43	--	0-84	0.96	--
Follow-up Suicide Ideation	185	229	7.08	--	0-73	0.94	--
Baseline Suicidal Behaviors	204	229	--	--	0-1	--	41.05%
Follow-up Suicidal Behaviors	172	229	--	--	0-1	--	6.10%
Baseline NSSI	224	229	--	--	0-1	--	33.62%

Follow-up NSSI		174		229		--	--
--	0-1		--		12.11%		
Depression	226	229	0.45	--	0-1.79	0.93	

Note: All alphas were computed from non-imputed data. Means, standard deviations, and ranges represent values for imputed data. NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$ NSSI = Non-suicidal self-injury.

Table 3

Study 2: Correlations among the Variables

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1. NFA_{avoid}	--	0.64***	0.43***	0.31***	0.24***	0.25***	0.21**	0.14*	0.29***	0.31***
2. $NFA_{approach}$		--	0.34***	0.05	0.09	0.003	0.09	-0.02	0.11	0.08
3. Rumination			--	0.32***	0.27***	0.28***	0.18**	0.09	0.20**	0.35***
4. Baseline Suicide Ideation				--	0.61***	0.54***	0.33***	0.23***	0.52***	0.72***
5. Follow-up Suicide Ideation					--	0.43***	0.59***	0.30***	0.54***	0.45***
6. Baseline Suicidal Behaviors						--	0.24**	0.45***	0.33***	0.42***
7. Follow-up Suicidal Behaviors							--	0.20**	0.33***	0.25***
8. Baseline NSSI								--	0.23***	0.20**
9. Follow-up NSSI									--	0.36***

10. Depression	--

^$p < .10$. *$p < .05$. **$p < .01$. **$p < .001$.
Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach}$. NSSI = non-suicidal self-injury.

Table 4

Study 2: Contributions of Need for Approval and Rumination to Suicidal Behaviors as a Continuous Variable

	Suicidal Behaviors		
Variable			
DV: Baseline SITBs			
Step 1			
Baseline NFA_{avoid}	0.40	0.08	4.79***
Baseline $NFA_{approach}$	-0.25	0.08	-3.13**
Baseline Rumination	0.20	0.07	2.97**
Step 2			
Baseline NFA_{avoid} x Rumination	0.10	0.08	1.20
Baseline $NFA_{approach}$ x Rumination	-0.01	0.08	-0.18
DV: Follow-up SITBs			
Step 1	0.08	0.02	3.83***
Baseline SITBs			
Step 2	0.05	0.03	1.48
Baseline NFA_{avoid}	-0.02	0.03	-0.61
Baseline $NFA_{approach}$	0.03	0.02	1.22
Baseline Rumination			
Step 3			
Baseline NFA_{avoid} x Rumination	0.07	0.03	2.21*
Baseline $NFA_{approach}$ x Rumination	-0.02	0.03	-0.57
B	***SE***		***t***

^$p < .10$. *$p < .05$. **$p < .01$. **$p < .001$.
Note: DV = Dependent Variable. SITBs = Self-injurious thoughts and behaviors. NFA = Need for Approval

Table 5

Study 1: Need for Approval and Rumination Predicting Depression

		Depression		
	Variable	***β***	***SE***	***t***
Step 1	Baseline NFA_{avoid}	0.30	0.10	2.96**
	Baseline $NFA_{approach}$	-0.16	0.09	-1.73^
	Baseline Rumination	0.57	0.09	6.68***
Step 2	Baseline NFA_{avoid}	0.12	0.10	1.16
	Baseline $NFA_{approach}$	-0.12	0.09	-1.35
	Baseline Rumination	0.62	0.08	7.81***
	Baseline NFA_{avoid} x Rumination	0.37	0.09	4.17***
	Baseline $NFA_{approach}$ x Rumination	-0.09	0.09	-1.11

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Table 6

Study 1: Mediated-Moderation Analyses for Baseline and Follow-up Suicide Ideation

		Baseline Suicide Ideation			Follow-up Suicide Ideation		
	Variable	***β***	***SE***	***t***	***β***	***SE***	***t***
Step 1	Baseline Suicide Ideation		--	--	0.04	0.08	0.37
Step 2	Baseline Suicide Ideation		--	--	-0.06	0.09	-0.54
	Baseline NFA_{avoid}	33	1.39	2.62*	0.14	0.06	0.98
	Baseline $NFA_{approach}$	-0.2	1.29	-1.69^	-0.12	0.05	-0.89
	Baseline Rumination	0	1.17	2.95**	0.20	0.05	1.59
		0.31					
Step 3	Baseline Suicide Ideation				-0.17	0.10	-1.28
	Baseline NFA_{avoid}		1.38	1.45	-0.04	0.06	-0.22
	Baseline $NFA_{approach}$	0.18	1.20	-1.25	-0.05	0.05	-0.39
	Baseline Rumination	-0.1	1.37	1.00	0.11	0.06	0.69
	Baseline NFA_{avoid} x Rumination	4	1.40	0.16	0.21	0.06	1.29
		0.12					
		0.02					
	Baseline $NFA_{approach}$ x Rumination	-0.0	1.19	-0.19	-0.10	0.05	-0.81
	Baseline Depression	2	1.80	0.90	0.29	0.08	1.43
	Baseline Depression x Rumination	0.15	1.15	2.84**	-0.01	0.05	-0.05
		0.40					

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Decomposition of Effects

NFA_{avoid} Predicting Baseline Suicide Ideation

Low Rumination	High Rumination

Indirect Effect	0.40	0.11
Direct Effect	0.03	0.02
Total Effect	0.43	0.13

Table 7

Study 2: Need for Approval and Rumination Predicting Depression

Depression

	Variable	*B*	*SE*	*t*
Step 1	Baseline NFA_{avoid}	0.34	0.08	4.22***
	Baseline $NFA_{approach}$	-0.24	0.08	-3.07**
	Baseline Rumination	0.29	0.07	4.24***
Step 2	Baseline NFA_{avoid}	0.32	0.09	3.70***
	Baseline $NFA_{approach}$	-0.23	0.08	-2.91**
	Baseline Rumination	0.29	0.07	4.24***
	Baseline NFA_{avoid} x Rumination	0.11	0.08	1.38
	Baseline $NFA_{approach}$ x Rumination	-0.16	0.08	-1.98*

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Table 8

Study 2: Mediation Analyses for Baseline Suicide Ideation

	Baseline Suicide Ideation			
	Variable	***B***	***SE***	***t***
Step 1	Baseline NFA_{avoid}	6.11	1.32	4.64***
	Baseline $NFA_{approach}$	-4.49	1.27	-3.53***
	Baseline Rumination	3.94	1.08	3.66***
Step 2	Baseline NFA_{avoid}	2.50	1.03	2.44*
	Baseline $NFA_{approach}$	-1.95	0.97	-2.01*
	Baseline Rumination	0.91	0.90	1.01
	Baseline Depression	10.52	0.84	12.48***

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Decomposition of Effects NFA_{avoid} Predicting Baseline Suicide Ideation	
Indirect Effect	3.52**
Direct Effect	2.50*
Total Effect	6.02***

Table 9

Study 2: Mediated-Moderation Analyses for Baseline Suicide Ideation

Baseline Suicide Ideation

	Variable	***B***	***SE***	***t***
Step 1	Baseline NFA_{avoid}	6.11	1.32	4.64***
	Baseline $NFA_{approach}$	-4.49	1.27	-3.53***
	Baseline Rumination	3.94	1.08	3.66***
Step 2	Baseline NFA_{avoid}	1.69	1.08	1.56
	Baseline $NFA_{approach}$	-1.42	0.99	-1.43
	Baseline Rumination	0.87	0.90	0.98
	Baseline NFA_{avoid} x Rumination	1.70	1.05	1.62
	Baseline $NFA_{approach}$ x Rumination	-0.36	1.00	-0.36
	Baseline Depression	10.30	0.87	11.85***
	Baseline Depression x Rumination	1.08	0.88	1.22

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.
Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Decomposition of Effects
$NFA_{approach}$ Predicting Baseline Suicide Ideation

	Low Rumination	High Rumination
Indirect Effect	0.70	-4.40***
Direct Effect	-1.06	-1.78*
Total Effect	-1.76	-6.18***

Table 10

Study 2: Mediation Analyses for Baseline Suicide Behaviors

Baseline Suicide Behaviors

	Variable	*B*	*SE*	*OR*
Step 1	Baseline NFA_{avoid}	0.78	0.21	2.18***
	Baseline $NFA_{approach}$	-0.70	0.21	0.50***
	Baseline Rumination	0.53	0.16	1.70*
Step 2	Baseline NFA_{avoid}	0.61	0.23	1.83**
	Baseline $NFA_{approach}$	-0.60	0.23	0.55*
	Baseline Rumination	0.35	0.17	1.42*
	Baseline Depression	0.79	0.19	2.21***

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.
Note: NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Decomposition of Effects
NFA Predicting Baseline Suicide Behaviors

	NFA_{avoid}	$NFA_{approach}$
Indirect Effect	0.27**	-0.17*
Direct Effect	0.61**	-0.60**
Total Effect	0.88***	-0.77***

Table 11

Study 2: Mediation Analyses for Baseline and Follow-Up NSSI

		Baseline NSSI			Follow-up NSSI		
	Variable	***B***	***SE***	***OR***	***B***	***SE***	***OR***
Step 1	Baseline NSSI	--	--	--	1.40	0.43	4.06***
Step 2	Baseline NSSI	--	--	--	1.12	0.46	3.06*
	Baseline NFA_{avoid}	0.52	0.20	1.67**	0.82	0.31	2.27**
	Baseline $NFA_{approach}$	-0.43	0.19	0.65*	-0.4	0.34	0.67
	Baseline Rumination	0.12	0.16	1.13	0	0.25	1.41
					0.35		
Step 3	Baseline NSSI	--	--	--		0.48	2.70*
	Baseline NFA_{avoid}	0.41	0.20	1.51*	0.99	0.32	1.81^
	Baseline $NFA_{approach}$	-0.35	0.20	0.70^	0.59	0.35	0.87
	Baseline Rumination	0.03	0.17	1.03	-1.4	0.27	1.16
	Baseline Depression	0.32	0.16	1.37*	2	0.24	2.05**
					0.15		
					0.72		

^$p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Note: NSSI = Non Suicidal Self-Injury. NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Decomposition of Effects
NFA_{avoid} Predicting NSSI

	Baseline NSSI	Follow-Up NSSI
Indirect Effect	0.11	0.24*
Direct Effect	0.41*	0.59*
Total Effect	0.52*	0.83**

Table 12

Study 2: Mediated-Moderation Analyses for Baseline NSSI

Baseline NSSI

	Variable	*B*	*SE*	*OR*
Step 1	Baseline NFA_{avoid}	0.52	0.20	1.67**
	Baseline $NFA_{approach}$	-0.43	0.19	0.65*
	Baseline Rumination	0.12	0.16	1.13
Step 2	Baseline NFA_{avoid}	0.35	0.23	1.42
	Baseline $NFA_{approach}$	-0.32	0.22	0.72
	Baseline Rumination	0.03	0.19	1.03
	Baseline NFA_{avoid} x Rumination	0.05	0.23	1.06
	Baseline $NFA_{approach}$ x Rumination	0.41	0.21	1.50^
	Baseline Depression	0.37	0.16	1.45*
	Baseline Depression x Rumination	-0.01	0.17	0.99

$^{\wedge}p < .10$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Note: NSSI = Non Suicidal Self-Injury. NFA_{avoid} = Need for $Approval_{avoid.}$ $NFA_{approach}$ = Need for $Approval_{approach.}$

Figure 1. Study 2: Predicting continuous suicidal behaviors at the 8-month follow-up from the interactive contribution of avoidance-oriented need for approval and rumination at baseline. Higher levels of NFA_{avoid} were associated with more suicidal behaviors at the 8-month follow-up for youth exhibiting high, but not low, levels of rumination.

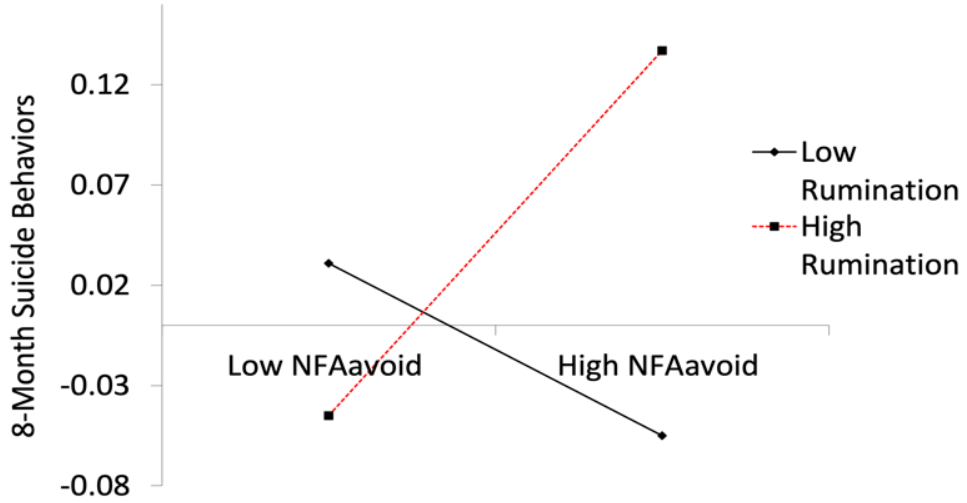

Figure 2. Study 1: Predicting depression at baseline from the interactive contribution of NFA_{avoid} and rumination. Higher levels of NFA_{avoid} were associated with more depression for youth exhibiting high, but not low, levels of rumination.

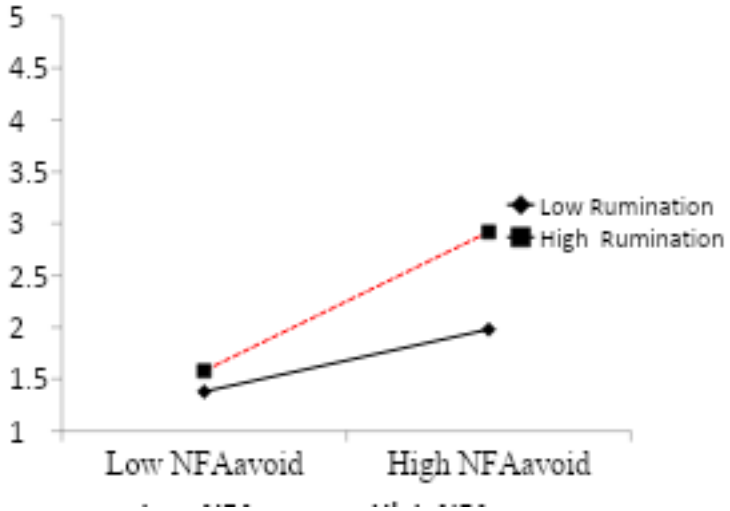

Figure 3. Study 2: Predicting depression at baseline from the interactive contribution of $NFA_{approach}$ and rumination. Higher levels of $NFA_{approach}$ were associated with less depression for youth exhibiting high, but not low, levels of rumination.