

Supplemental Analyses and Results

Accuracy Analysis

Task accuracy was examined using the same data analytic models as the reaction time (RT) analysis (see *Results: Behavioral Analysis* for details). In terms of basic task effects, the analysis revealed a main effect of condition, $F(1.46, 106.59) = 61.97, p < .001, \eta_p^2 = .459, 90\% \text{ CI } [.340 .545]$. The planned simple contrast follow-up analyses demonstrated that participants responded significantly more accurately to BaselineT1 targets ($M = 97.31\%, SD = 3.10\%$) than to T2Short targets ($M = 91.28\%, SD = 8.83\%$), $F(1, 73) = 68.19, p < .001, \eta_p^2 = .483, 90\% \text{ CI } [.342 .582]$. Similarly, BaselineT1 targets had higher accuracy than T2Long targets ($M = 95.86\%, SD = 5.91\%$), $F(1, 73) = 11.94, p = .001, \eta_p^2 = .141, 90\% \text{ CI } [.037 .262]$. Additionally, there was a main effect of Sensory, $F(1, 73) = 14.98, p < .001, \eta_p^2 = .170, 90\% \text{ CI } [.057 .294]$, where participants responded significantly more accurately to auditory targets ($M = 95.59\%, SD = 4.91\%$) than to visual targets ($M = 94.05\%, SD = 6.65\%$). However, both of these basic task effects were qualified by a significant Condition x Sensory interaction, $F(1.758, 128.36) = 4.29, p = .020, \eta_p^2 = .056, 90\% \text{ CI } [.005 .124]$.

When this interaction was broken down by sensory modality, the within-subject effect of Condition was significant for both visual, $F(1.57, 114.44) = 34.93, p < .001, \eta_p^2 = .324, 90\% \text{ CI } [.206 .419]$, and auditory targets, $F(1.72, 125.75) = 43.70, p < .001, \eta_p^2 = .374, 90\% \text{ CI } [.261 .461]$. Additionally, when the planned simple contrasts were examined within each sensory modality, participants responded significantly more accurately to BaselineT1 targets (BaselineT1_{visual}: $M = 96.15\% SD = 5.08\%$; BaselineT1_{auditory}: $M = 98.47\%, SD = 2.47\%$) than T2Short targets (T2Short_{visual}: $M = 90.10\% SD = 11.02\%$; T2Short_{auditory}: $M = 92.47\%, SD = 7.95\%$) for both visual, $F(1, 73) = 34.09, p < .001, \eta_p^2 = .318, 90\% \text{ CI } [.175 .438]$, and auditory

stimuli, $F(1, 73) = 58.86, p < .001, \eta_p^2 = .446, 90\% \text{ CI } [.302 .551]$. However, accuracy for BaselineT1 targets was only significantly higher than T2Long targets for auditory stimuli (T2Long_{auditory}: $M = 95.83\%, SD = 6.13\%$), $F(1, 73) = 18.99, p < .001, \eta_p^2 = .206, 90\% \text{ CI } [.082 .331]$. T2Long_{visual} accuracy (T2Long_{visual}: $M = 95.89\%, SD = 6.72\%$) did not significantly differ from BaselineT1_{visual} accuracy, $F(1, 73) = .16, p = .690, \eta_p^2 = .002, 90\% \text{ CI } [.000 .049]$.

The accuracy analysis did not reveal any significant SRP-III interactions (SRP-III x Condition interaction: $F(1.46, 106.59) = 1.21, p = .292, \eta_p^2 = .016, 90\% \text{ CI } [.000 .070]$; SRP-III x Sensory interaction: $F(1, 73) = .26, p = .613, \eta_p^2 = .004, 90\% \text{ CI } [.000 .056]$; SRP-III x Condition x Sensory interaction: $F(1.76, 128.36) = .05, p = .932, \eta_p^2 = .001, 90\% \text{ CI } [.000 .015]$). Similarly, there was not a significant main effect of SRP-III on task accuracy, $F(1, 73) = 1.39, p = .242, \eta_p^2 = .019, 90\% \text{ CI } [.000 .096]$.

SRP Factors and Facets

While the attention bottleneck model of psychopathy traditionally conceptualizes psychopathy as a unitary construct, some researchers advocate for examining the subcomponent traits of psychopathy (i.e., Factors of psychopathy: Factor 1 [interpersonal-affective traits], Factor 2 [impulsive-antisocial traits]; Facets of psychopathy: Facet 1 [interpersonal traits], Facet 2 [affective traits], Facet 3 [lifestyle traits], and Facet 4 [antisocial traits]). We reran our regression models (see *Results: Behavioral Analysis* and *Results: ERP Analysis*) two different ways. First, we included SRP Factor 1 and SRP Factor 2 scores as simultaneous predictors of interest. Second, we included each facet, SRP Facet 1, SRP Facet 2, SRP Facet 3, and SRP Facet 4 scores, as simultaneous predictors.

SRP Factors: Behavioral Analysis. SRP Factor 1 scores did not significantly interact with either task condition (SRP Factor 1 x Condition: $F(1.45, 104.57) = .33, p = .650, \eta_p^2 = .005$, 90% CI [.000 .040]), sensory modality (SRP Factor 1 x Sensory: $F(1, 72) = .06, p = .809, \eta_p^2 = .001$, 90% CI [.000 .034]) or the Condition x Sensory interaction (SRP Factor 1 x Condition x Sensory: $F(1.87, 134.71) = .50, p = .597, \eta_p^2 = .007$, 90% CI [.000 .037]). Additionally, there was not a significant main effect of SRP Factor 1 on RT, $F(1, 72) = .14, p = .711, \eta_p^2 = .002$, 90% CI [.000 .047].

However, consistent with our main findings, there was a significant SRP Factor 2 x Condition interaction, $F(1.452, 104.57) = 4.09, p = .031, \eta_p^2 = .054$, 90% CI [.003 .132]. Similarly, the planned follow-up contrast revealed that SRP Factor 2 scores were related to significantly increased T2Short RT relative to BaselineT1 RT, indicating greater intensity of bottleneck interference in individuals high on SRP Factor 2, $F(1, 72) = 5.29, p = .024, \eta_p^2 = .068$, 90% CI [.005 .175]. However, unlike our main SRP-III total score findings, SRP Factor 2 scores were not significantly related to the T2Long RT vs. BaselineT1 RT contrast, $F(1, 72) = 1.84, p = .179, \eta_p^2 = .025$, 90% CI [.000 .109]. This suggests that the relationship between psychopathy and longer duration of bottleneck interference may be unique to psychopathy as a unitary construct.

No other SRP Factor 2 interactions were significant, (SRP-Factor 2 x Sensory interaction: $F(1, 72) = .36, p = .552, \eta_p^2 = .005$, 90% CI [.000 .063]; SRP-Factor 2 x Condition x Sensory interaction: $F(1.87, 134.71) = .52, p = .581, \eta_p^2 = .007$, 90% CI [.000 .038]). Similarly, there was not a significant main effect of SRP Factor 2 on RT, $F(1, 72) = 2.49, p = .119, \eta_p^2 = .033$, 90% CI [.000 .124].

SRP Factors: ERP Analysis. SRP Factor 1 did not significantly interact with any task effects in the ERP analysis (SRP Factor 1 x SOA: $F(1,63) = .75, p = .390, \eta_p^2 = .012, 90\% \text{ CI } [.000 .088]$; SRP Factor 1 X Sensory: $F(1,63) = 2.02, p = .161, \eta_p^2 = .031, 90\% \text{ CI } [.000 .127]$; SRP Factor 1 X SOA X Sensory interaction: $F(1, 63) = 1.12, p = .293, \eta_p^2 = .018, 90\% \text{ CI } [.000 .101]$). Similarly, the main effect of SRP Factor 1 scores on P300 amplitude was not significant, $F(1, 63) = .36, p = .553, \eta_p^2 = .006, 90\% \text{ CI } [.000 .071]$.

SRP Factor 2 did not significantly interact with SOA, $F(1, 63) = .41, p = .525, \eta_p^2 = .006, 90\% \text{ CI } [.000 .073]$. However, there was a significant SRP Factor 2 x Sensory interaction, $F(1, 63) = 7.33, p = .009, \eta_p^2 = .104, 90\% \text{ CI } [.015 .229]$, where individuals higher on SRP Factor 2 displayed significantly blunted P300 amplitude in response to auditory target stimuli, $\beta = -.41, p = .002$, but not visual target stimuli, $\beta = -.08, p = .621$. The SRP Factor 2 x SOA x Sensory interaction was not significant, $F(1, 63) = 2.76, p = .102, \eta_p^2 = .042, 90\% \text{ CI } [.000 .145]$. Similar to our main SRP-III total score findings, there also was a significant main effect of SRP Factor 2 on P300 amplitude, $F(1, 63) = 6.06, p = .017, \eta_p^2 = .088, 90\% \text{ CI } [.009 .208]$; however, unlike the main SRP-III total score findings, this main effect was qualified by the significant SRP Factor 2 x Sensory interaction.

SRP Facets: Behavioral Analysis. None of the SRP Facets showed any significant effects in the behavioral analysis. More specifically, SRP Facet 1 did not significantly interact with any task effects (SRP Facet 1 x Condition: $F(1.50, 105.12) = .14, p = .809, \eta_p^2 = .002, 90\% \text{ CI } [.000 .026]$; SRP Facet 1 x Sensory: $F(1, 70) = .61, p = .437, \eta_p^2 = .009, 90\% \text{ CI } [.000 .075]$; SRP Facet 1 x Condition x Sensory: $F(1.94, 135.79) = .99, p = .372, \eta_p^2 = .014, 90\% \text{ CI } [.000 .053]$), and there was not a significant main effect of SRP Facet 1 scores on RT, $F(1, 70) = .17, p = .684, \eta_p^2 = .002, 90\% \text{ CI } [.000 .052]$. SRP Facet 2 did not significantly interact with any task effects

(SRP Facet 2 x Condition: $F(1.50, 105.12) = .05, p = .912, \eta_p^2 = .001, 90\% \text{ CI } [.000 .011]$; SRP Facet 2 x Sensory: $F(1, 70) = .11, p = .746, \eta_p^2 = .002, 90\% \text{ CI } [.000 .045]$; SRP Facet 2 x Condition x Sensory: $F(1.94, 135.79) = .14, p = .865, \eta_p^2 = .002, 90\% \text{ CI } [.000 .015]$), and the main effect of SRP Facet 2 scores on RT also was not significant, $F(1, 70) = .31, p = .579, \eta_p^2 = .004, 90\% \text{ CI } [.000 .061]$. SRP Facet 3 did not significantly interact with any of the task effects (SRP Facet 3 x Condition: $F(1.50, 105.12) = .04, p = .923, \eta_p^2 = .001, 90\% \text{ CI } [.000 .008]$; SRP Facet 3 x Sensory: $F(1, 70) = .52, p = .475, \eta_p^2 = .007, 90\% \text{ CI } [.000 .072]$; SRP Facet 3 x Condition x Sensory: $F(1.94, 135.79) = .43, p = .645, \eta_p^2 = .006, 90\% \text{ CI } [.000 .034]$), and did not have a significant main effect on RT, $F(1, 70) = .03, p = .857, \eta_p^2 = .000, 90\% \text{ CI } [.000 .018]$. Finally, SRP Facet 4 did not significantly interact with any task effects, (SRP Facet 4 x Condition: $F(1.50, 105.12) = 3.30, p = .054, \eta_p^2 = .045, 90\% \text{ CI } [.000 .118]$; SRP Facet 4 x Sensory: $F(1, 70) = .00, p = .969, \eta_p^2 = .000, 90\% \text{ CI } [.000 .000]$; SRP Facet 4 x Condition x Sensory: $F(1.94, 135.79) = 1.13, p = .324, \eta_p^2 = .016, 90\% \text{ CI } [.000 .057]$), and did not have a significant main effect on task RT, $F(1, 70) = 1.78, p = .186, \eta_p^2 = .025, 90\% \text{ CI } [.000 .110]$.

SRP Facets: ERP Analysis. Similar to the behavioral analysis, none of the SRP facet scores had any significant effects on P300 amplitude. More specifically, SRP Facet 1 did not significantly interact with any neural task effects (SRP Facet 1 x SOA: $F(1, 61) = .59, p = .445, \eta_p^2 = .010, 90\% \text{ CI } [.000 .084]$; SRP Facet 1 x Sensory: $F(1, 61) = .24, p = .626, \eta_p^2 = .004, 90\% \text{ CI } [.000 .065]$; SRP Facet 1 x SOA x Sensory, $F(1, 61) = 1.10, p = .298, \eta_p^2 = .018, 90\% \text{ CI } [.000 .103]$), and did not have a significant main effect on P300 amplitude, $F(1, 61) = .81, p = .372, \eta_p^2 = .013, 90\% \text{ CI } [.000 .093]$. SRP Facet 2 did not significantly interact with any neural task effects (SRP Facet 2 x SOA: $F(1, 61) = 1.17, p = .284, \eta_p^2 = .019, 90\% \text{ CI } [.000 .106]$; SRP Facet 2 x Sensory: $F(1, 61) = .69, p = .409, \eta_p^2 = .011, 90\% \text{ CI } [.000 .088]$; SRP Facet 2 x SOA

x Sensory, $F(1, 61) = .00, p = .955, \eta_p^2 = .000, 90\% \text{ CI } [.000 .000]$), and did not have a significant main effect on P300 amplitude, $F(1, 61) = .00, p = .991, \eta_p^2 = .000, 90\% \text{ CI } [.000 .000]$. SRP Facet 3 did not significantly interact with any neural task effects (SRP Facet 3 x SOA: $F(1, 61) = 1.63, p = .207, \eta_p^2 = .026, 90\% \text{ CI } [.000 .120]$; SRP Facet 3 x Sensory: $F(1, 61) = .01, p = .920, \eta_p^2 = .000, 90\% \text{ CI } [.000 .007]$; SRP Facet 3 x SOA x Sensory, $F(1, 61) = .17, p = .686, \eta_p^2 = .003, 90\% \text{ CI } [.000 .059]$), and did not have a significant main effect on the P300 amplitude, $F(1, 61) = 1.74, p = .191, \eta_p^2 = .028, 90\% \text{ CI } [.000 .123]$. Finally, SRP Facet 4 did not significantly interact with any neural task effects (SRP Facet 4 x SOA: $F(1, 61) = .62, p = .436, \eta_p^2 = .010, 90\% \text{ CI } [.000 .085]$; SRP Facet 4 x Sensory: $F(1, 61) = 3.67, p = .060, \eta_p^2 = .057, 90\% \text{ CI } [.000 .169]$; SRP Facet 4 x SOA x Sensory, $F(1, 61) = 1.08, p = .303, \eta_p^2 = .017, 90\% \text{ CI } [.000 .103]$), and did not have a significant main effect on P300 amplitude, $F(1, 61) = .64, p = .427, \eta_p^2 = .010, 90\% \text{ CI } [.000 .086]$.