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# Prediction of verbal and physical aggression among young adults: A path analysis of alexithymia, impulsivity, and aggression

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ABSTRACT

Alexithymia is a personality construct characterized by difficulties in identifying and describing emotions. Previous research has identified a positive association between alexithymia and aggression, and impulsivity may account for some of that association. This study tested a path model of associations between alexithymia, five facets of impulsivity (negative urgency, positive urgency, lack of premeditation, lack of perseverance, and sensation seeking), and verbal and physical aggression in a sample of 503 undergraduate students. Alexithymia had significant positive associations with all facets of impulsivity except for sensation seeking. Negative urgency and (lack of) premeditation mediated the relationship between alexithymia and verbal aggression. Positive urgency, negative urgency, and (lack of) premeditation mediated the relationship between alexithymia and physical aggression. Positive urgency also moderated the relationship between alexithymia and both forms of aggression, increasing the strength of those associations. These results highlight the role of emotion dysregulation in the context of aggression and support the use emotion regulation skills training in anger and aggression management programs.

## 1. Introduction

This study tested whether impulsivity mediated associations between alexithymia and aggression. Alexithymia is a personality construct characterized by difficulties in identifying and describing emotions (Bagby et al., 1994), and is positively associated with aggression (Fossati et al., 2009; Konrath et al., 2012; Manninen et al., 2011). However, that relationship is not well understood. Indeed, the inability to identify and describe one's own emotional state may increase the likelihood for dysregulated behavior following an emotion (Lane and Schwartz, 1987; Taylor et al., 1997). However, there are likely intermediate mechanisms (e.g., impulsivity) that may account for or strengthen this association. Research suggests that impulsivity is also associated with aggression (Derefinko et al., 2011; Lynam and Miller, 2004) and may be a key mediator accounting for some of the relationship between alexithymia and aggression (Velotti et al., 2016). However, the term impulsivity refers to a multidimensional behavioral construct, and all facets of impulsivity may not have the same predictive utility.

Although research is somewhat limited with regard to the specific facets of impulsivity and aggression, negative urgency, positive urgency, and lack of premeditation have been identified as the strongest predictors of aggression (Carlson et al., 2013; Derefinko et al., 2011; Settles et al., 2012; Seibert et al., 2010). Sensation seeking and lack of perseverance have also been identified as sharing bivariate associations with aggression (Dvorak et al., 2013; Carlson et al., 2013). However, these associations diminish when included in multivariate analyses with negative urgency, positive urgency, and lack of premeditation.

Previous research has identified positive and negative urgency as mediators between alexithymia and problematic outcomes (Emery et al., 2014; Shishido et al., 2013), as well as the interaction between alexithymia and positive urgency in predicting problematic outcomes (Shishido et al., 2013). The current study examined negative urgency, positive urgency, and lack of premeditation as mediators in the relationship between alexithymia and both verbal and physical aggression. Additionally, positive urgency was hypothesized to have a moderating effect on this relationship, such that emotional deficits (i.e., alexithymia) combined with a propensity to act rashly in response to intense positive emotions might synergistically increase one's propensity to engage in verbal or physical aggression.

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## 2. Method

### 2.1. Participants

Participants were 502 undergraduate college students (71% female, 29% male) between the ages of 18–25 ($M$ = 19.13, $SD$ = 1.24). The majority of the participants (90%) were white, 2% were African American, 2% were Asian, 3% were Native American or Alaskan Native, 2% were Latino or Hispanic, and 1% were Multiracial. All questionnaires were completed online. All participants who completed the study were included in the analyses.

### 2.2. Measures

#### 2.2.1. Demographics

Participants' age, gender, race, and ethnicity were assessed.

#### 2.2.2. Alexithymia

Alexithymia was measured using the 20-item Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994). All items were measured on a 5-point Likert-type scale with 1 representing "strongly disagree" and 5 representing "strongly agree"; five items were reversed scored. Three subscales comprise the TAS-20: Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and Externally Oriented Thinking (EOT). The Cronbach's alpha for this sample was 0.84.

#### 2.2.3. Impulsivity

The five facets of impulsivity (i.e., negative urgency, (lack of) premeditation, (lack of) perseverance, sensation seeking, and positive urgency) were measured using the UPPS-P Impulsive Behavior Scale (UPPS-P; Lynam et al., 2007). The UPPS-P consists of 59 self-report items with scores ranging from one to four. Scores for each scale were calculated by taking the mean of all items on each respective scale. Higher scores indicated higher levels of each facet. The alpha reliabilities for this sample were 0.88, 0.85, 0.82, 0.84, and 0.93 for negative urgency, (lack of) premeditation, (lack of) perseverance, sensation seeking, and positive urgency, respectively.

#### 2.2.4. Aggression

Physical and verbal aggression were assessed using the AGG scale of The Personality Assessment Inventory (PAI; Morey, 1991). The PAI is a self-report measure designed to assess personality and behavioral characteristics. Each scale consisted of six items. Higher scores indicated a greater propensity to engage in that form of aggression. The alpha reliabilities were 0.66 for verbal aggression and 0.69 for physical aggression.

## 3. Results

### 3.1. Descriptive and bivariate statistics

Alexithymia exhibited large positive associations with positive and negative urgency and moderate associations with lack of premeditation, lack of perseverance, and physical aggression. There was also a small association between alexithymia and verbal aggression. Moreover, all facets of impulsivity were significantly associated with both verbal and physical aggression, with the exception of sensation seeking. Sensation seeking was significantly associated with verbal but not physical aggression. Generally, the impulsivity facets had moderate associations with physical aggression and small associations with verbal aggression. Male participants reported significantly higher levels of sensation seeking, positive urgency, and physical aggression. See Table 1 for descriptive statistics and bivariate correlations.

### 3.2. Path analysis

The path model was tested using Mplus 7.4 (Muthén and Muthén, 2015). Alexithymia was an exogenous variable with paths specified to all endogenous variables (i.e., five facets of impulsivity, verbal aggression, and physical aggression). Direct paths were also specified from negative urgency, lack of premeditation, and positive urgency to both verbal and physical aggression. Moreover, a direct path was specified from sensation seeking to physical aggression and a direct path from lack of perseverance to verbal aggression. Direct paths were also specified to both types of aggression from the alexithymia × positive urgency interaction term, as well as the corresponding main effect of alexithymia. The interaction term was covaried with alexithymia and the residual of positive urgency (Preacher et al., 2007). The residuals of the impulsivity facets were allowed to covary, as were verbal and physical aggression. Gender was included as a covariate to all variables in the model. The overall model showed a good fit: $X^2(7, N = 504) = 5.79$, $p = .568$; RMSEA = 0.000 (90% CI [0.000, 0.049]); CFI = 1.000; SRMR = 0.012 (see Fig. 1).

Alexithymia had significant direct effects on all endogenous variables except for sensation seeking and verbal aggression. As hypothesized, negative urgency and lack of premeditation had significant direct effects on both verbal aggression and physical aggression. Positive urgency had a significant positive effect on physical aggression, but not verbal aggression. The alexithymia × urgency interaction had significant direct effects on both types of aggression, such that the effect of alexithymia on aggression became stronger as positive urgency increased.

Indirect effects were calculated using bias-corrected bootstrapped confidence intervals (MacKinnon et al., 2004). Alexithymia had a significant indirect effect on verbal aggression via negative urgency ($\beta$ = 0.13, $p = .007$; 90% CI [0.05, 0.20]). There were also significant indirect effects of alexithymia on physical aggression via negative urgency ($\beta$ = 0.07, $p = .028$; 90% CI [0.03, 0.13]) and lack of premeditation ($\beta$ = 0.04, $p = .002$; 90% CI [0.02, 0.06]).

The significant alexithymia × positive urgency interaction on both physical and verbal aggression resulted in conditional indirect effects. At high levels of alexithymia (i.e., 1 SD above the mean), there was a significant indirect effect of alexithymia on verbal aggression via positive urgency ($b$ = 0.11, 95% CI [0.02, 0.19]). However at mean and low (i.e., 1 SD below the mean) levels of alexithymia, the indirect effect was not significant ($b = -0.01$, 95% CI [−0.03, 0.01] and $b = -0.02$, 95% CI [−0.08, 0.04], respectively). The indirect effect of alexithymia on physical aggression via positive urgency was significant across all levels of alexithymia. At low and mean levels of alexithymia, there were moderate effects ($b$ = 0.07, 95% CI [0.02, 0.13], and $b$ = 0.02, 95% CI [0.01, 0.04). However, the condition indirect effect was stronger at high levels of alexithymia ($b$ = 0.16, 95% CI [0.07, 0.26]).

Men reported higher levels of sensation seeking ($\beta$ = 0.25, $p < .001$) and positive urgency ($\beta$ = 0.091, $p = .014$), but did not differ on negative urgency, lack of premeditation, or lack of perseverance ($ps > 0.6$). Men also reported higher levels of physical aggression ($\beta$ = 0.12, $p = .003$), but did not significantly differ from women on verbal aggression ($\beta$ = 0.07, $p = .110$).

## 4. Discussion

This study examined the associations between alexithymia, impulsivity, and aggression. Alexithymia had significant direct effects on all facets of impulsivity except for sensation seeking. This finding supports the theory that difficulties in emotional understanding and awareness can increase a person's propensity to engage in impulsive behavior (Lane and Schwartz, 1987; Taylor et al., 1997). As hypothesized, negative urgency, lack of premeditation, and positive urgency mediated the relationship between alexithymia and physical aggression, while only negative urgency mediated the relationship between

**Table 1**
Correlations between observed variables and descriptive statistics ($N$ = 503).

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | *M (SD)* | Range | Skew |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Gender | | | | | | | | | | | |
| 2. Alexithymia | .01 | | | | | | | | 48.50 (11.23) | 18–81 | 0.10 |
| 3. Negative Urgency | .01 | .52*** | | | | | | | 25.64 (5.98) | 13–44 | 0.15 |
| 4. Sensation Seeking | .25*** | .04 | .09 | | | | | | 31.82 (6.74) | 12–47 | −0.21 |
| 5. (lack of) Premeditation | .02 | .20*** | .17*** | −.03 | | | | | 24.14 (5.53) | 11–44 | 0.40 |
| 6. (lack of) Perseverance | .02 | .37*** | .40*** | −.24*** | .55*** | | | | 20.51 (4.90) | 10–36 | 0.03 |
| 7. Positive Urgency | .10* | .57*** | .75*** | .17*** | .31*** | .38*** | | | 25.99 (8.13) | 14–53 | 0.30 |
| 8. Verbal Aggression | .07 | .11* | .21*** | .13** | .14** | .08* | .18*** | | 13.12 (2.57) | 6–23 | 0.32 |
| 9. Physical Aggression | .14** | .35*** | .35*** | .04 | .29*** | .29*** | .42*** | .37*** | 7.65 (2.61) | 5–20 | 0.96 |

*Note:* Gender (Men = 1, Women = 0). ***$p < .001$, **$p < .01$, *$p < .05$.

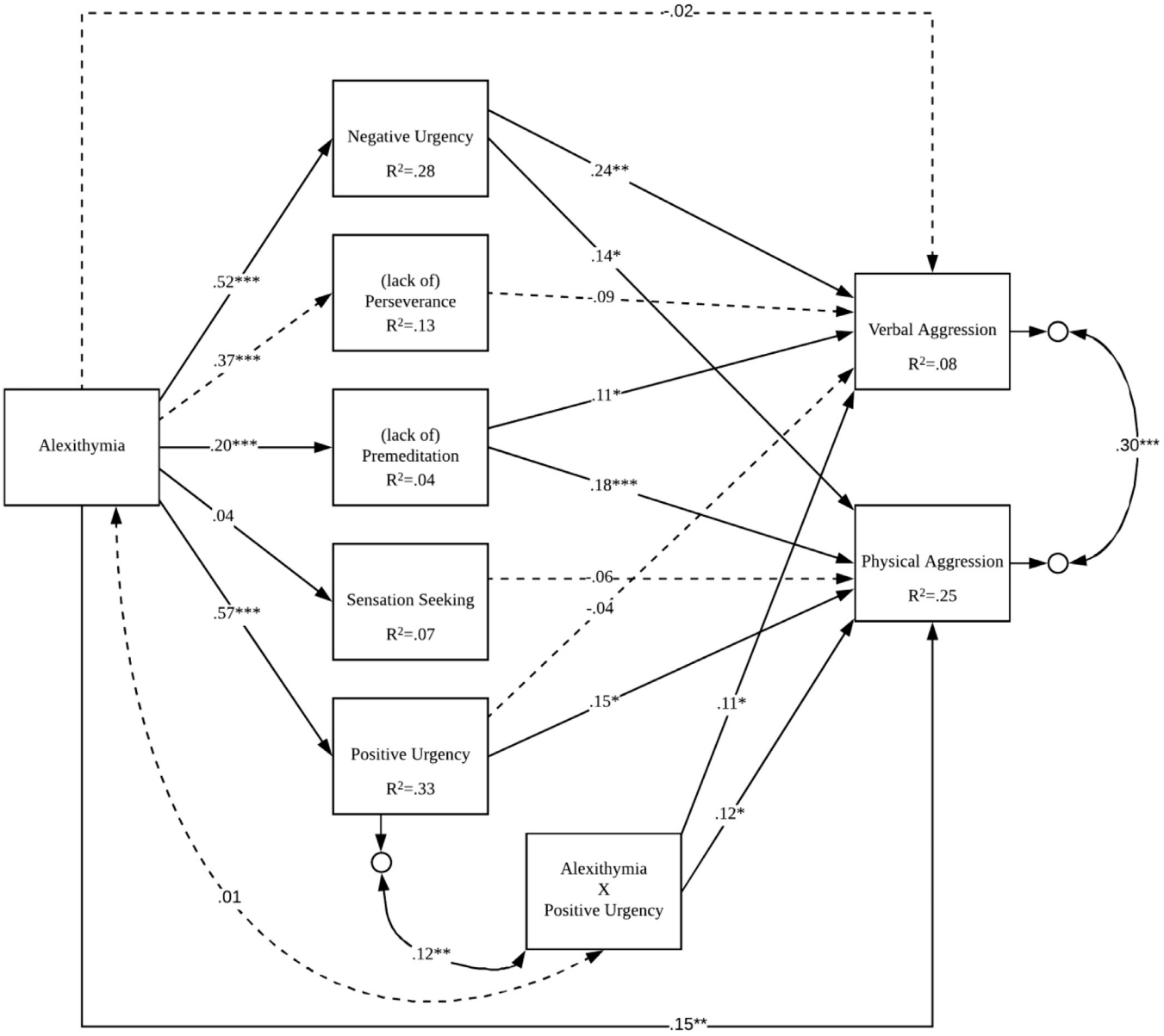


**Fig. 1.** Path model ($N$ = 502). All values are standardized coefficients. *$p < .05$, **$p < .01$, ***$p < .001$. Solid lines indicate significant paths, dotted lines indicate non-significant paths. Residuals of impulsivity facets were allowed to covary. Gender was included as a covariate, but omitted for clarity. Paths from alexithymia to verbal and physical aggression are direct paths.

alexithymia and verbal aggression. The effect of alexithymia on verbal aggression was completely accounted for via negative urgency. However, despite having significant indirect paths through negative urgency, positive urgency, and lack of premeditation, alexithymia still had a significant independent effect on physical aggression, over and above the aforementioned effects. Thus, there may be additional constructs accounting for the relationship between alexithymia and physical aggression other than impulsivity.

There was also a moderated mediation effect of positive urgency on both verbal and physical aggression. Alexithymia and positive urgency interacted such that at high levels of alexithymia, there was a significant direct effect of positive urgency on both types of aggression. However, at low levels of alexithymia the effect of positive urgency was either attenuated (i.e., physical aggression) or not significant (i.e., verbal aggression). This effect indicates that people higher in alexithymia may be at an increased risk for aggression due to disinhibited behavior during times of intense positive emotions.

Overall, this study identified positive urgency, negative urgency, and lack of premeditation as mediators in the relationship between alexithymia and aggression. Although there is a considerable amount of literature identifying negative urgency as an important risk factor for aggression, less attention has been given to positive urgency. This study identified the synergistic relationship between alexithymia and positive urgency in predicting both verbal and physical aggression.

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