**Multilevel Modeling**

**Analysis Plan**

A series of multilevel models were conducted to test the following study hypotheses:

H1: College student’s alcohol related consequences (ARC) vary across 30 days.

Filename: PG PTSD12 int only.out

H2: Student’s ARCs are higher on days when they drank alcohol before going out (e.g., pregaming)

Filename: PG PTSD rand coef 1 predictor.out

H3: Having a history of trauma moderated the associated between pregaming and ARC.

Filename: PG PTSD rand coef trauma vs no trauma.out

ARC was treated as a continuous normally distributed variable. Pregaming was coded 0 = did not pregame, 1 = did pregame. Trauma was coded 0 = Trauma, 1 = No trauma. Analyses were conducted using Mplus 7.4 (Muthén & Muthén, 1998–2012). ARC was treated as both a within and between level variable as it was expected to vary from day to day as well as across individuals. Pregaming was treated as a within level only variable, as each day was coded as either a day in which a student pregamed or did not pregame. Trauma was coded as a between level only variable as trauma exposure was established at baseline.

Hypothesis 1 was tested with an intercept only model by examining the intraclass correlation (ICC). The ICC is the proportion of variance in the outcome variable that is explained by the grouping structure of the hierarchical model. Values higher than .05 are typically considered sufficient to necessitate multilevel modeling due to alpha inflation that results from dependency in nested data.

Hypothesis 2 was tested by adding pregaming to the model on the within level as a predictor of ARC.

Hypothesis 3 was tested by adding trauma to the model as a predictor of the random intercept and random slope terms.

**Results**

*Individual level variability in ARC.* The ICC for the intercept only model was .08, which indicated that 8% of the variance was explained by dependencies across individuals. This indicates sufficient individual level variability in ARC to warrant MLM. Further, the mean ARC across students was .32, which suggests that an average student reports a third of a consequence on a given day. In other words, on most days, students did not report any consequences.

*Pregaming as a predictor of ARC.* Results from the random intercepts and slopes model with pregaming as a level-1 predictor revealed that pregaming is a significant predictor of ARC across individuals (s = 2.39, SE = .11, p < .001). Specifically, students reported 2.39 more consequences on pregaming days compared to days when they did not pregame.

*Past trauma as a moderator of the pregaming-ARC relationship.* Results from the random intercepts and slopes model with pregaming as a level-1 predictor of ARC and trauma history as a level-2 predictor of the slope of pregaming-ARC, revealed that trauma history significantly moderated the pregaming-ARC relationship (b = -.522, SE = .23, p = .02). Specifically, those with a history of trauma had a stronger relationship (i.e., a steeper slope) between pregaming and ARC. Further, having a trauma history was associated with more consequences on level-2, such that having a history of trauma was associated with experiencing more consequences on average compared to students who did not experience trauma (b = -.11, SE = .02, p < .001).

**Discussion**

The present study demonstrated that there is significant variation in ARC within persons in a sample of college students. In addition, this present study demonstrated that students report more consequences on days when they pregame compared to days when they do not pregame. Finally, this relationship was moderated by trauma history, such that those with a history of trauma experienced more consequences on average and had a stronger relationship between pregaming and ARC. Intervention efforts aimed at reducing ARC among college students should target limiting pregaming, and special attention should be paid to students who report a history of trauma, as trauma portends additional risk for experiencing ARC.