

An aggressive reaction to sound: The interactive effects of anxiety sensitivity and misophonia on facets of aggression

Molly J. Schadegg, MA, Sara M. Witcraft, MA, Megan M. Perry, BA, Gina Q. Boullion, MS, & Laura J. Dixon, PhD

✉ mjschade@go.olemiss.edu

INTRODUCTION

- **Misophonia** = sensitivity to and decreased tolerance for certain sounds (e.g., chewing), resulting in discomfort, anger, and aggression.
 - Research has attempted to understand **misophonia** by examining associations with psychopathology (e.g., anxiety, depression) and autonomic arousal.
- Given the role of anxiety sensitivity (AS) as an amplification factor, we predicted AS would moderate the association between **misophonia** and aggression facets (i.e., anger, physical aggression, hostility, and verbal aggression).

METHODS

1. Participants included undergraduate students ($N = 472$; 73.9% Female) with at least minimal sound sensitivity.
2. Self-report measures were completed online for course credit.
3. The PROCESS macro was used to test four moderation models examining the interaction between **misophonia** symptoms and AS on aggression facets.
 - Interactions were probed and depicted at 16th, 50th, and 84th percentiles.

RESULTS

- 23.8% screened positive for **misophonia** clinical cutoff.
- The full regression models accounted for between 15 to 20% variance in aggression facets.
- In all models, conditional and interaction effects for **misophonia** and AS were significant. See Figures 1 - 4 for a depiction of the interaction and ΔR^2 .

Anxiety Sensitivity strengthens the association between **Misophonia** and **Aggression***.

**Anger, Physical Aggression, Hostility, and Verbal Aggression*

Figure 1. **Anger** $\Delta R^2 = .019, p = .009$

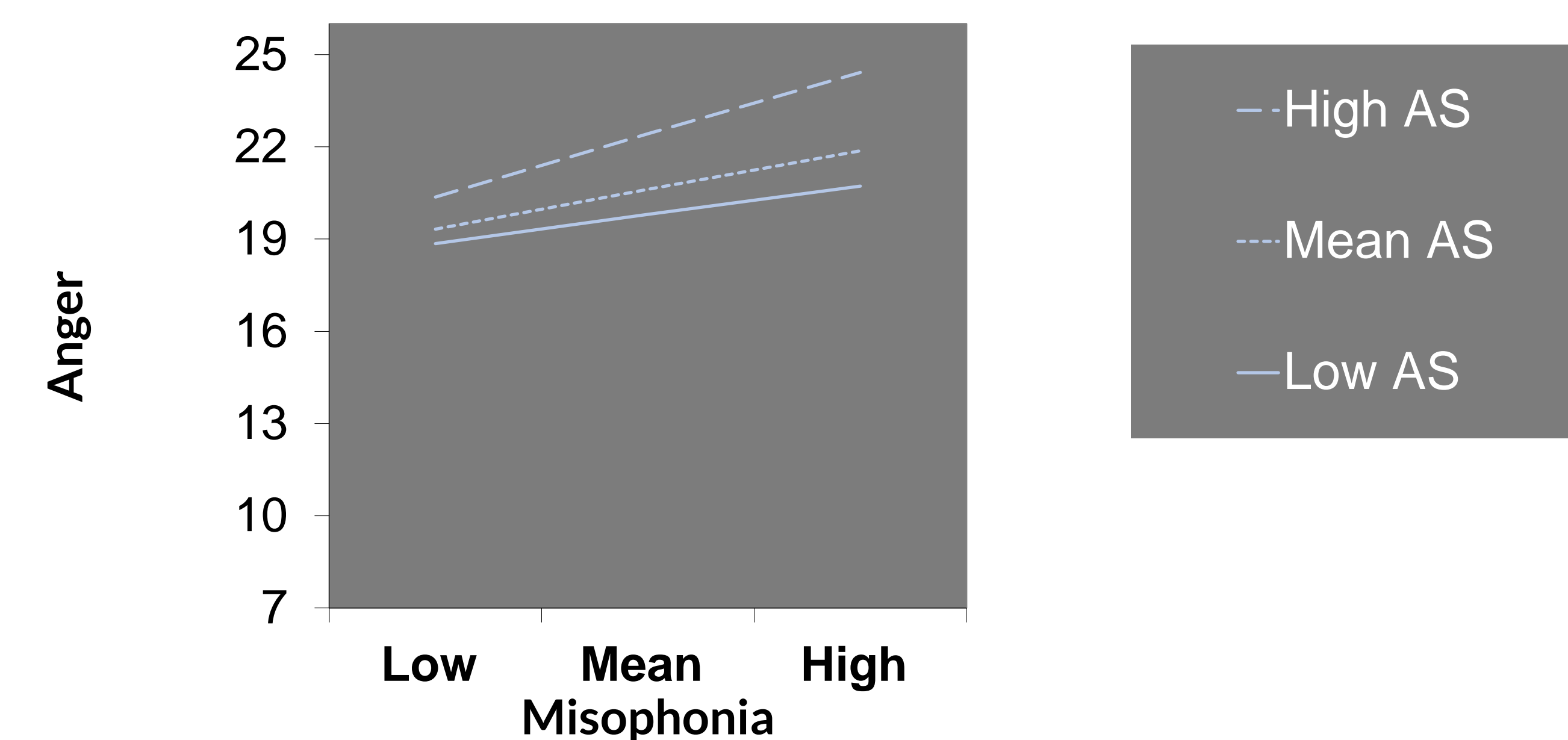


Figure 2. **Physical Aggression** $\Delta R^2 = .009, p = .028$

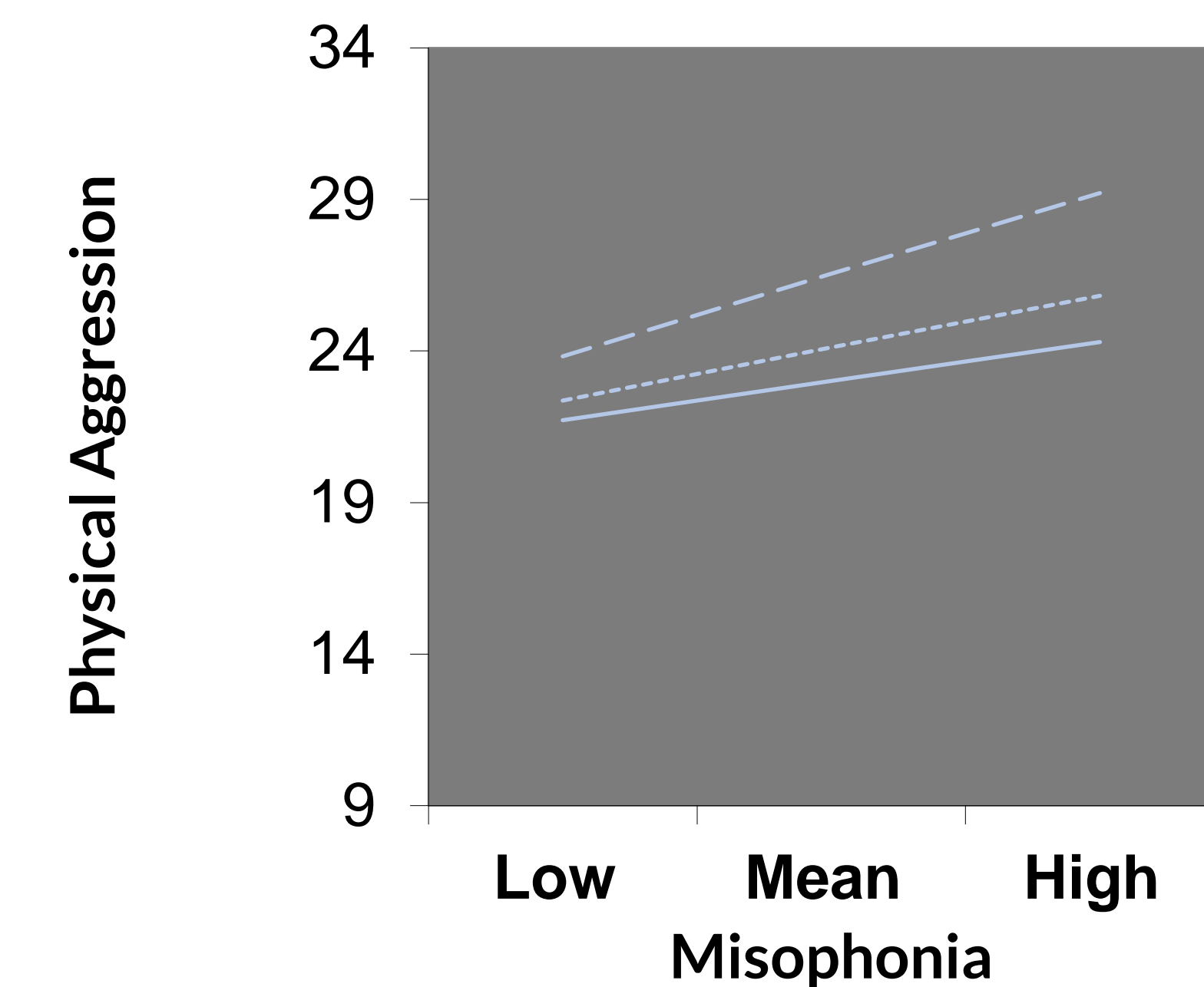


Figure 3. **Hostility** $\Delta R^2 = .022, p < .001$

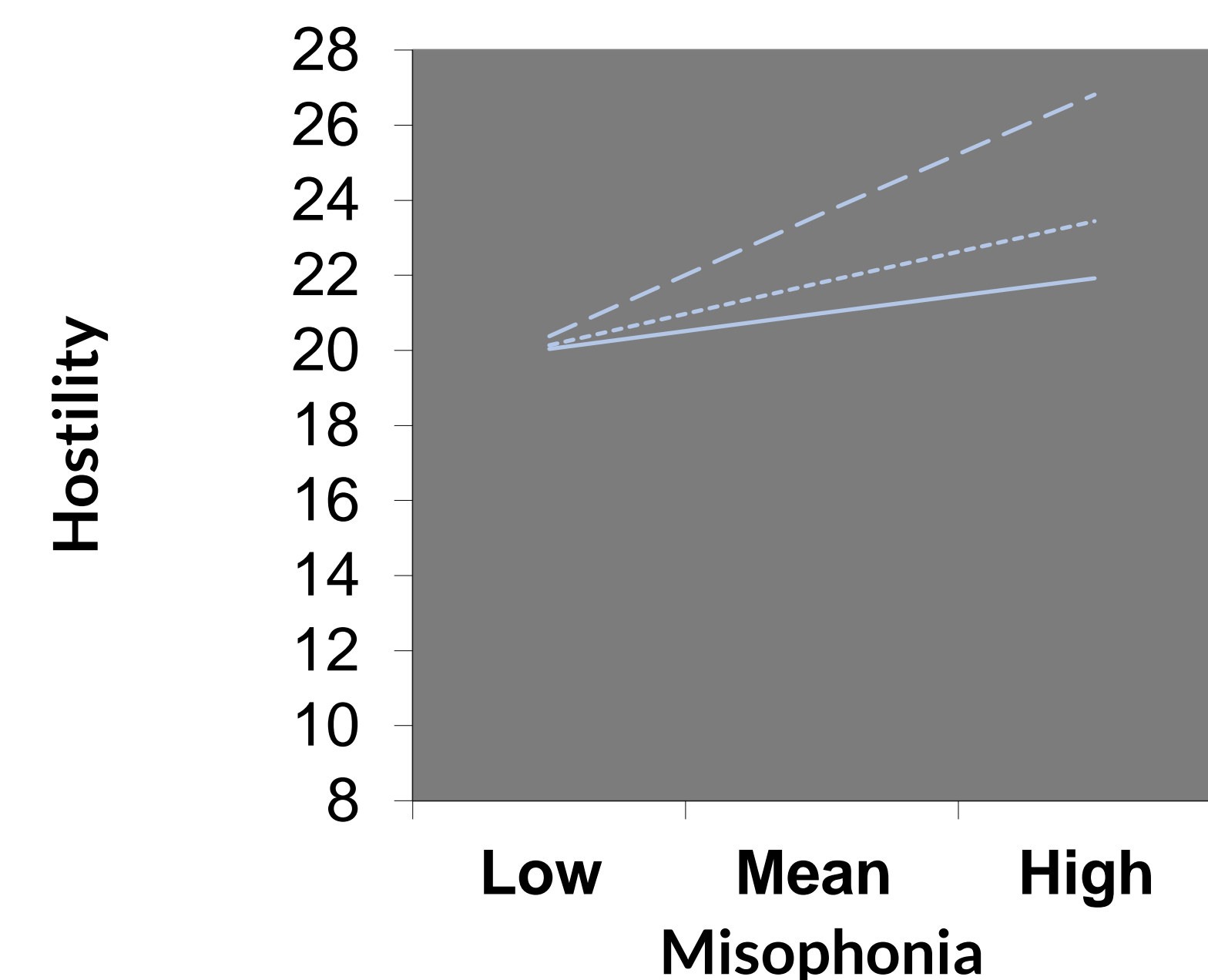
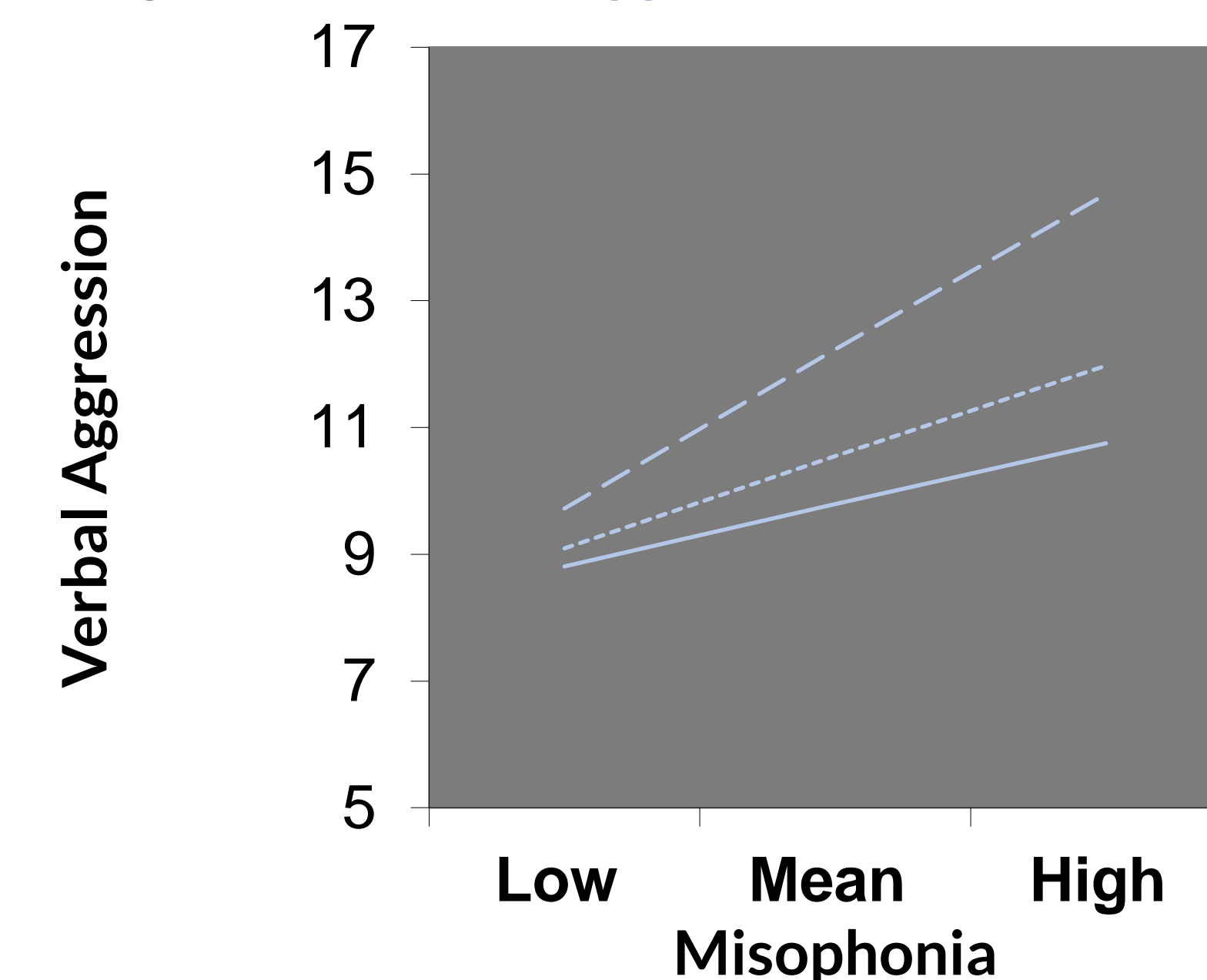


Figure 4. **Verbal Aggression** $\Delta R^2 = .019, p < .001$



DISCUSSION

- Results support AS as a pivotal factor in the expression of anger and aggression in **misophonia**.
- One implication of these findings is that targeting AS could enhance treatment outcomes, particularly given the differential habituation responses observed in exposure therapy for **misophonia**.



Molly J. Schadegg, MA, Sara M Witcraft, MA; Megan M Perry, MA; Gina Q Boullion, MS, & Laura J. Dixon, Ph.D.

Title: An aggressive reaction to sound: The interactive effects of anxiety sensitivity and misophonia on facets of aggression

Categories: Anger; Adult Anxiety

Keywords: Anger/Irritability, Anxiety, Transdiagnostic

Abstract

Background: A developing area of research has highlighted misophonia as a relatively common and disabling phenomenon, particularly in college populations (Wu et al., 2014). Misophonia is characterized by sensitivity to and decreased tolerance for certain sounds (e.g., chewing), which can result in discomfort or anger (Schröder et al., 2013). Recent studies on misophonia have demonstrated an association with various psychological symptoms, including anxiety, depression, and anxiety sensitivity (AS; McKay et al., 2018; Wu et al., 2014). Further, a similar connection has been established between misophonia and physiological responses underlying psychological symptoms (e.g., autonomic arousal; Dozier & Morrison, 2017; Edlestein et al., 2013). Given the newfound research directions for misophonia and its role in psychopathology, the current study investigated the moderating role of AS in the relation of misophonia and facets of aggression (i.e. anger, physical aggression, hostility, and verbal aggression).

Methods: Data collected from the targeted sample ($N = 472$; $M_{age} = 18.69$; $SD = 1.44$) was part of a larger study examining stress in college students ($N = 655$). Most participants were female (73.9%) and White (82.8%). They completed a battery of measurements, including misophonia (Misophonia Questionnaire; Wu et al., 2014), AS (Anxiety Sensitivity Index-3; Taylor et al 2007), and aggression (Buss-Perry Aggression Questionnaire; Buss & Perry, 1992). Analyses were conducted using the PROCESS macro to test four moderation models examining the interaction between misophonia symptoms and AS on aggression facets (i.e. anger [Model 1], physical aggression [Model 2], hostility [Model 3], and verbal aggression [Model 4]).

Results: Bivariate correlations yielded significant associations between the variables ($r = .29 - .36$; $p < .001$). The models accounted for between 15.1-20.3% of the variance in aggression facets ($p < .001$). In all models, conditional and interaction effects for misophonia and AS were significant. Misophonia X AS was a significant predictor of anger (small effects; $\Delta R^2 = .019$ $p = .009$), physical aggression ($\Delta R^2 = .009$, $p = .028$), hostility ($\Delta R^2 = .022$, $p < .001$), and verbal aggression ($\Delta R^2 = .019$, $p < .001$). Specifically, in Models 1, 2, and 4, the association between misophonia and aggression facets strengthen as AS increased. In Model 3, this relationship was significant at high, but not low, levels of AS.

Discussion: This study provides further support for associations between misophonia and maladaptive behaviors. Specifically, results support AS as a pivotal factor in the expression of anger and aggression in misophonia. One implication of these findings is that targeting AS could enhance treatment outcomes, particularly given the differential habituation responses observed in exposure therapy for misophonia (Frank & McKay, 2019).

References

- Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, *63*(3), 452–459. <https://doi-org.umiss.idm.oclc.org/10.1037/0022-3514.63.3.452>
- Dozier, T. H., & Morrison, K. L. (2017). Phenomenology of misophonia: Initial physical and emotional responses. *The American Journal of Psychology*, *130*(4), 431–438. <https://doi-org.umiss.idm.oclc.org/10.5406/amerjpsyc.130.4.0431>
- Edelstein, M., Brang, D., Rouw, R., & Ramachandran, V. S. (2013). Misophonia: Physiological investigations and case descriptions. *Frontiers in Human Neuroscience*, *7*. Retrieved from <http://search.ebscohost.com.umiss.idm.oclc.org/login.aspx?direct=true&db=psyh&AN=2013-25932-001&site=ehost-live&scope=site>
- Frank, B., & McKay, D. (2019). The suitability of an inhibitory learning approach in exposure when habituation fails: A clinical application to misophonia. *Cognitive and Behavioral Practice*, *26*(1), 130–142. <https://doi-org.umiss.idm.oclc.org/10.1016/j.cbpra.2018.04.003>
- McKay, D., Kim, S.-K., Mancusi, L., Storch, E. A., & Spankovich, C. (2018). Profile analysis of psychological symptoms associated with misophonia: A community sample. *Behavior Therapy*, *49*(2), 286–294. <https://doi-org.umiss.idm.oclc.org/10.1016/j.beth.2017.07.002>
- Schröder, A., Vulink, N., & Denys, D. (2013). Misophonia: Diagnostic criteria for a new psychiatric disorder. *PLoS ONE*, *8*(1). Retrieved from <http://search.ebscohost.com.umiss.idm.oclc.org/login.aspx?direct=true&db=psyh&AN=2013-06816-001&site=ehost-live&scope=site>
- Taylor, S., Zvolensky, M. J., Cox, B. J., Deacon, B., Heimberg, R. G., Ledley, D. R., ... Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment*, *19*(2), 176–188. <https://doi-org.umiss.idm.oclc.org/10.1037/1040-3590.19.2.176.supp> (Supplemental)
- Wu, M. S., Lewin, A. B., Murphy, T. K., & Storch, E. A. (2014). Misophonia: Incidence, phenomenology, and clinical correlates in an undergraduate student sample. *Journal of Clinical Psychology*, *70*(10), 994–1007. <https://doi-org.umiss.idm.oclc.org/10.1002/jclp.22098>