

Winging It: Exploring the Effects of Applied Improvisation on Stress Levels in Individuals with Autism Spectrum Disorder

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Research Question

Will applied improvisational theater decrease stress levels in individuals with Autism Spectrum Disorder (ASD), as measured by salivary cortisol levels?



Intervention

- “Winging It” was created by four second year speech-language pathology graduate students at the University of Delaware, and was held in January of 2020
- Sessions were 3 hours each over 10 days; 3 p.m. to 6 p.m., with a final showcase performance on the final Friday
- Facilitated by five first-year graduate students, four second-year graduate students, and five licensed Speech-Language Pathologists
- All games were adapted by the “Camp Yes, And”, curriculum a similar program based out of Indiana University (Alana, 2020)

Participants

- Winging It recruited by word of mouth and fliers targeting individuals age 16+ with a medical diagnosis and/or educational classification of ASD who self-identified as high-functioning. Individuals 18+ were given the option to participate in research.
- Participant 1: 21-year-old African-American male currently enrolled in high school. No reported sensory concerns for participation.
- Participant 2: 19-year-old caucasian male who had graduated from high school the previous year. Reported sensory concerns for loud, unexpected noises.

Measures and Procedures

- Stress levels were measured by salivary cortisol, a steroid hormone that serves as a biological marker for stress (Corbett et al., 2006)
- Salivary cortisol samples collected at the beginning and end of the session 2x per week
 - 3 p.m. to establish a daily baseline
 - 6 p.m. to determine change in stress level
- Participant 2 provided salivary cortisol on a third day in the second week due to inability to produce saliva the previous day
- Samples were sent to Salimetrics' SalivaLab and assayed using the Salivary Cortisol Assay Kit without modifications to the manufacturers' protocol

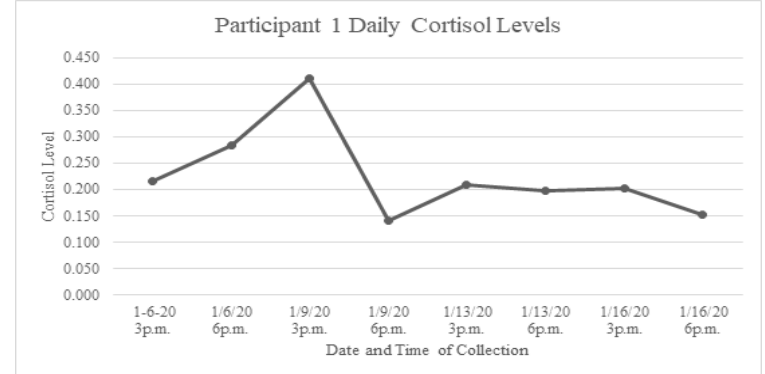
Results: Participant 1

Within Session: Overall decrease in cortisol except for day 1 with the largest decrease on day 2

Across Sessions: Overall decrease in cortisol except for day 2, however day 2 showed the largest within-session change

Changes from First Session and Last Session: Decrease in cortisol levels at baseline and end-of-session

Participant 1			
Date	Time	Cortisol Level	Change Across Session
01/06/20	3 p.m.	0.216	0.068
	6 p.m.	0.284	
01/09/20	3 p.m.	0.411	-0.270
	6 p.m.	0.141	
01/13/20	3 p.m.	0.210	-0.013
	6 p.m.	0.197	
01/16/20	3 p.m.	0.203	-0.051
	6 p.m.	0.152	



Results: Participant 2

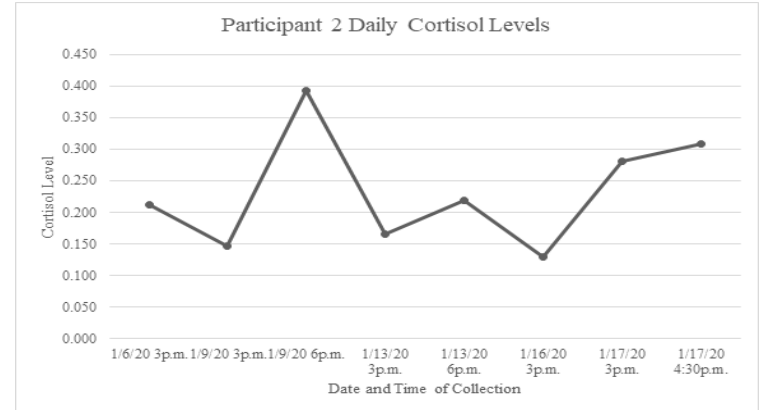
Within Session: Cortisol levels increased at the end of 3 measurable sessions

Across Sessions: No discernable pattern in changing cortisol levels

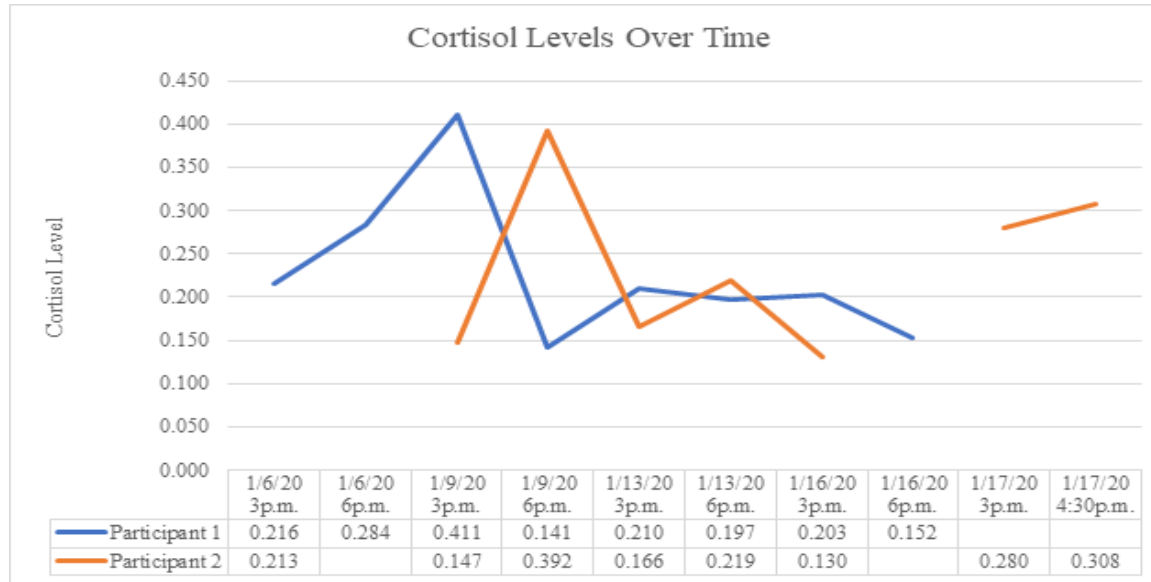
Changes from First Day to Last Day: Decrease in cortisol at baseline from day 1 and day 4; no end-of-day data for day 4. However, cortisol levels increased at baseline on day 5. No end-of-day data for day 1.

Participant 2			
Date	Time	Cortisol Level	Change Across Session
01/06/20	3 p.m.	0.213	--
	6 p.m.	*qns	
01/09/20	3 p.m.	0.147	0.245
	6 p.m.	0.392	
01/13/20	3 p.m.	0.166	0.053
	6 p.m.	0.219	
01/16/20	3 p.m.	0.130	--
	6 p.m.	**N/A	
01/17/20	3 p.m.	0.280	0.028
	4:30 p.m.	0.308	

*Salimetrics' Saliva Lab determined that saliva quantity was not sufficient for analysis
 ** Participant was unable to produce saliva for this collection time



Participant 1 and 2 Over Time



Discussion

- Results from Participant 1 indicates a relationship between stress levels and participation in Winging It
 - Cortisol levels decreased within and across sessions; decrease from beginning and end of workshop
 - ***Hypothesis supported***
- Results from Participant 2 are variable, therefore do not indicate a relationship between stress levels and participation in Winging It
 - Cortisol levels were consistently higher at the conclusion of each session
 - ***Hypothesis not supported***

Conclusion

Results of this study are inconclusive. Participant 1's cortisol levels supported the hypothesis, based on current literature while Participant 2's cortisol levels did not (Corbett et al., 2011, 2014). Due to the small number of participants, further research is needed to conclude the effects of applied improvisation on stress in individuals with ASD.

Acknowledgements

Deepest thanks to Diane Chugani, faculty mentor of this Capstone project.

Extended thanks to Annie Doordan, Jacquie Truluck, Christine Cook, and Aquiles Iglesias for their support and role in launching Winging It, Jim Ansaldo and “Camp Yes, And” for providing training on applied improvisational theater and ongoing support. Finally, thank you to my colleagues, Kathleen Becker, Kelly McGarry, and Maddy Pruitt for their dedication to the creation and facilitation of Winging It.



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