2018 Young Investigators
Abstracts of Research Presented at the 23rd ISRA Meeting (Paris, France)
**** All Young Investigators listed *in italics***

Neural Responses to Practicing Self-Control: The Case of Anger Provocation

Joanne R. Beames | University of New South Wales
Timothy P. Schofield | The University of Melbourne
Mark M. Schira | Neuroscience Research Australia and University of Wollongong
Thomas F. Denson | University of New South Wales

Poor self-control causes many problems for individuals and communities. One means to improve self-control is through practice, otherwise known as self-control training (SCT). Studies examining the phenomenological mechanisms induced by SCT have failed to identify robust causal influences. One possibility is that SCT may enhance self-control via changes to neural activity. To test this hypothesis, the current fMRI study examined whether SCT changes neural networks related to self-control when provoked. Forty-five healthy young men and women completed two-weeks of SCT or an active behavioral monitoring task, and were then insulted during scanning. Relative to participants in the SCT condition, participants in the control condition demonstrated increased activation in the middle frontal gyrus, precentral gyrus, insula, and claustrum from pre- to post provocation. Trait aggression correlated with activation in prefrontal areas for both conditions, increased activation in the insula for the SCT condition, and increased activation in the hippocampus and thalamus for the control condition. Amygdala-frontal functional connectivity emerged in both conditions post-provocation, however, connectivity was stronger in the SCT condition. Finally, SCT had no impact on a behavioral measure of response inhibition or self-reported anger. These results provide the first evidence for the neural mechanisms underlying SCT.

Alcohol as a Distal and Proximal Risk Factor for Sexual Aggression: Evidence from Longitudinal, Experimental and Qualitative Data

Massil Benbouriche | Wayne State University
Antonia Abbey | Wayne State University

Sexual aggression is a substantial public health issue on university campuses and in society at large. Alcohol is present in approximately 50% of sexual assaults (Abbey et al., 2014). Results of experimental studies also show that alcohol is a situational risk factor for sexual aggression (d = .32; Crane et al., 2016). Using data from longitudinal, experimental and qualitative designs, the overall aim of the present symposium is to discuss how and for whom alcohol is involved in sexual aggression. Testa and Cleveland present results from a prospective study with first year male college students highlighting the role of drinking venue attendance in the relationship between heavy episodic drinking and sexual aggression. Benbouriche et al. describe findings from an alcohol administration study which demonstrate that alcohol's effects on men's sexual aggression intentions vary based on their rape supportive attitudes. Through a sexual imposition

paradigm, Leone et al., examine the independent and interactive effects of alcohol, perceived alcohol use of the female target, and masculine gender role stress on men's sexual aggression. Abbey et al. present findings from a dating simulation designed to study "in the moment" processes associated with sexual aggression. For intoxicated male participants, there was a strong link between engaging in consensual sexual activities and persisting after receiving a refusal. Swan et al. asked college students to describe situations in which alcohol or other drugs were used without someone's knowledge to obtain sex without consent. Although these situations were rare, they occurred in social situations which felt normal and safe. In combinations, these studies provide insight into the types of circumstances in which alcohol is most likely to encourage sexual aggression among individuals predisposed to be sexually aggressive. The authors will discuss the implications of their findings for futures research and prevention initiatives.

From Sexual Misperception to Behavioral Intentions: The Distinct Effects of Alcohol and Sexual Arousal in Sexual Aggression

Massil Benbouriche | Wayne State University
Jean-Pierre Guay | University of Montreal
Benoit Testé | University of Brittany
Marc Lavoie | University of Montreal

Background: Alcohol myopia (Steele & Josephs, 1990) is the dominant theory to explain the effects of alcohol in sexual aggression (George & Stoner, 2000). A similar framework has been proposed to explain the effects of sexual arousal in social information processing, in particular decision-making, namely a "motivational myopia" (Ditto et al., 2006). However, much less is known about the interactive effects of alcohol and sexual arousal in sexual aggression. Method: We used a 2 x 2 between participants factorial design (N = 135) to study the effects of acute alcohol intoxication and sexual arousal on (1) sexual misperception, (2) behavioral intentions to use non-violent coercive strategies, and (3) behavioral intentions to commit rape. Results: Using Cox regressions, multiple linear and multiple logistic regressions, we found that the effects of alcohol on sexual misperception as well as on behavioral intentions of sexual aggression were moderated by rape supportive attitudes. Together, those results indicate that even when men correctly perceive an absence of sexual consent, those with a higher level of rape supportive attitudes are more likely to use coercive strategies to have sex if no alcohol has been consumed, but are also more likely to commit rape when they have consumed alcohol. Discussion: Further investigations is required to fully understand why sexual arousal showed no significant effect. While sexual arousal was successfully manipulated, such results suggest that processes underlying alcohol myopia and motivational myopia may differ.

Neurocognitive Profiles of Substance Users who have a History of Offending Behaviour

Ashlee Curtis | Deakin University; Odyssey House Victoria
Victoria Manning | Turning Point; Monash University
James R. Gooden | Turning Point; Monash University Clayton
Catherine A. Cox | Turning Point

Neurocognitive impairment is a common characteristic among people with a history of substance use and violent offending. Understanding the severity and nature of these impairments is critical for developing effective interventions. Impairment of some key neurocognitive functions may reduce responsivity to treatment approaches that require higher-order cognitive functioning (e.g., CBT). This project specifically focusses on the identification of neurocognitive strengths and weaknesses that should be considered when recommending such individuals for substance use or offender treatment programs. A retrospective case file audit was undertaken, utilising a community-based clinical sample who were referred for neuropsychological assessment in Melbourne, Australia by community-agencies or justice-services. One hundred and ninety case files of both current and previous substance users were reviewed, including assessment reports and neuropsychological test data. Substance users with a history of violent offending were compared to health population norms on standardised common neuropsychological tests. Over one-quarter of violent offenders demonstrated performances in borderline or extremely-low range on a measure of estimated premorbid intellectual functioning, and one-in-five demonstrated verbal comprehension and perceptual reasoning in this range. In addition, half demonstrated working memory in the borderline or extremely-low range, and one-third performed in this range for processing speed. Half of the sample showed impaired response inhibition and three-quarters showed impaired divided attention (mental flexibility). Finally, one-in-five exhibited impaired verbal fluency and semantic fluency. It is argued that treatments that are responsive to people's cognitive capacity and accommodate their relative cognitive strengths and weaknesses are likely to improve long-term outcomes for these individuals.

From Animal Brains to Criminal Minds – Bridging Perspectives on Neural Signatures of Anger and Aggression

Gabriela Gan | Central Institute of Mental Health Mannheim

Anger is an approach-related basic emotion that often results in reactive aggression, manifesting not only in clinical and criminal populations, but to a certain degree in healthy individuals. Neurobiological models of human aggression suggest that anger and reactive aggression are mediated by an imbalance between hypoactive "top-down" prefrontal areas, and hyperactive "bottom-up" limbic reward, as well as threat-related circuits. While animal models of aggressive behavior mostly target maladaptation in subcortical circuits that are involved in motivated behavior such as the hypothalamus, the striatum, and the lateral habenula, the focus has shifted towards the involvement of the prefrontal cortex given its importance for human aggression. In our symposium, we will bring together researchers approaching the neural signatures of anger and aggression from different perspectives. The first talk will discuss neural circuits of aggressive behavior based on novel animal models of appetitive aggression. The second talk will report on the impact of genetic vulnerability for aggressive behavior on intermediate neural

phenotypes in emotion and inhibitory control circuits in healthy human populations, specifically looking at variation in RBFOX1, a newly identified candidate gene for aggression. The third talk will focus on altered neural functioning of clinically significant reactive aggression in intermittent-explosive disorder based on findings from functional magnetic resonance imaging (fMRI). The final talk will discuss the neural underpinnings of aggressive behavior in criminal populations and prediction of future antisocial behavior using MRI data (i.e., neuroprediction). Our symposium adopts a translational view on the neural basis of anger and aggression to foster the dialogue between aggression researchers from different disciplines. Therefore, we aim to delineate maladaptive brain processes underlying pathological anger and aggression, and highlight opportunities and pitfalls in integrating findings from animal and human neurobiological models of aggressive behavior.

Genetic Variation in RBFOX1 Modulates Prefrontal-Cingulate Functioning in Emotion and Inhibitory Control Circuits

Gabriela Gan | Central Institute of Mental Health Mannheim
Anais Harneit | Central Institute of Mental Health Mannheim
Marjolein van Donkelaar | Radboud University Medical Center
Janina Schweiger | Central Institute of Mental Health Mannheim
Henrik Walter | Charité University Medicine
Susanne Erk | Charité University Medicine
Barbara Frank | Radboud University Medical Center
Andreas Meyer-Lindenberg | Central Institute of Mental Health Mannheim
Heike Tost | Central Institute of Mental Health Mannheim

Adoption and twin studies demonstrate that aggressive behavior runs in families with half the risk being attributable to genetic factors. Genome-wide association studies (GWAS) on anger and aggression have identified a new candidate gene for aggression, RBFOX1 (RNA binding protein fox-1 homolog 1), which is involved in neural development. Here, we assessed the impact of genetic variation in RBFOX1 on intermediate neural phenotypes of aggressive behavior in prefrontal-limbic emotion and inhibitory control circuits. 331 healthy adults (mean age = 33 +/-9.8; 48% male; ethnicity: Caucasian) were genotyped for the rs6500744 RBFOX1 variant, the top RBFOX1 hit in a GWAS on conduct disorder symptoms(Sonuga-Barke et al., 2008). Emotion-, and inhibition-related brain functioning was measured with a face-matching task and a Flanker/GoNogo task using functional magnetic resonance imaging (Meyer-Lindenberg et al., 2006). We analyzed the effect of rs6500744 on brain functioning with a 3 (genotype) x 2 (sex) full-factorial model controlled for age using SPM12. Risk allele carriers (CC, C/T) showed a significantly increased response of the dorsal anterior cingulate cortex during emotion processing (pFWE=.006), and a reduced response of the left inferior/middle frontal gyrus during inhibitory control compared to T/T carriers (pFWE=.033). Together with recent findings in animal models, we provide first evidence that genetic variation in RBFOX1 is associated with altered inhibition-and emotion-related prefrontal-cingulate functioning in humans. Notably, our findings for RBFOX1 converge with intermediate neural phenotypes in

prefrontal-cingulate emotion and inhibition circuits previously linked to the MAOA-L genotype, the most widely studied risk genotype for aggression.

Explaining the Link between Genetic Risk and Externalizing and Internalizing Problems in Young Children: The Role of Emotion Dysregulation

Alexis M. Garcia | Florida International University
Jennifer Coto | Florida International University
Melanie Stollstorff | Florida International University
Paulo A. Graziano | Florida International University

Behavioral genetics research has identified several candidate genes (i.e., DRD4 7+, SERT, and DAT1) involved in externalizing (EXT; e.g., Attention-Deficit/Hyperactivity Disorder [ADHD]) and internalizing disorders (INT; e.g., Anxiety/Depression). Given the comorbidity of EXT and INT, identifying mechanisms that may explain such overlap and shared genetic risk factors is critical. The current study focuses on emotion dysregulation, specifically emotion regulation (EREG) and emotional reactivity/lability/negativity (ERNL), given its association with both EXT and INT. The goal of this study was to examine the associations between candidate genes, emotion dysregulation, and EXT and INT problems in a sample of young children. Participants included 202 children (Mage=4.95, 72% male, 86% Latino), 72 of which were typically developing (TD) while 130 carried a diagnosis (ADHD, ADHD+ODD). ERNL, EREG, EXT, and INT were all measured at one time point via a combination of parent and teacher (PT) report. DRD4 7+ was the only gene associated with INT, ODD, ADHD, ERNL, and EREG (rs = -.25 to -.17, $p<.05$). Analyses of indirect bias-corrected effects revealed that ERNL (ab = -.36; -2.93) and EREG (ab = -.29; -3.19) mediated the association between DRD4 7+ and ODD as well as INT. DRD4 7+ was related to more ERNL and worse EREG, which then predicted worse ODD severity and INT, respectively. While speculative due to the cross-sectional nature of our study, our findings suggest that DRD4 7+ may be a genetic biomarker for emotion dysregulation which places children at-risk for the development of both externalizing and internalizing problems.

Enhancing Anger Regulation with Neurostimulation of the vmPFC during the Anger-Infused Ultimatum Game: A Simultaneous tDCS-fMRI Study

Gadi Gilam | Tel Aviv Sourasky Medical Center; Tel-Aviv University and Stanford University School of Medicine
Rany Abend | Tel Aviv Sourasky Medical Center; Tel-Aviv University and National Institute of Mental Health
Guy Gurevitch | Tel Aviv Sourasky Medical Center and Tel-Aviv University
Alon Erdman | Tel Aviv Sourasky Medical Center and Tel-Aviv University
Halen Baker | Tel Aviv Sourasky Medical Center
Ziv Ben-Zion | Tel Aviv Sourasky Medical Center and Tel-Aviv University
Talma Hendler | Tel Aviv Sourasky Medical Center and Tel-Aviv University

The anger-infused Ultimatum game (UG) is a recently developed reliable and valid paradigm to induce and assess the experience and expression of realistic interpersonal anger. In this paradigm, unfair monetary offers accompanied by written provocations induce anger. Rejection of such offers by responders relates to aggression, whereas acceptance is linked to anger regulation. We previously demonstrated that ventro-medial prefrontal cortex (vmPFC) activation positively associated with acceptance rates and negatively with self-reported anger in an anger-infused UG. Here, we tested whether transcranial Direct Current Stimulation (tDCS) targeting the vmPFC would increase acceptance of unfair offers and decrease self-reported anger in the anger-infused UG. We further examined whether the effects of stimulation will transfer to a subsequent angering interaction by administering the Taylor Aggression Paradigm (TAP), in which noise-blast intensities inflicted to an opponent reflect provoked aggression. We conducted a double-blind crossover study (N=25) comparing the effects of active vs. sham stimulation during fMRI. Participants reported their anger before and after the tasks. Results indicate that active stimulation led to increased acceptance of unfair offers, and mitigated an increase in self-reported anger following the anger-infused UG. Brain analysis revealed increased activation of vmPFC for unfair offers during active vs. sham stimulation. More vmPFC activation during active stimulation associated with less increase in provoked aggression in the TAP. Findings suggest a causal link between vmPFC functionality and the experience and expression of anger, supporting vmPFC's role in anger regulation and providing a promising avenue for reducing angry and aggressive outbursts during interpersonal provocations.

Till Death Do Us Part: A Study of Weapon Usage in Intimate Partner Homicide (IPH), 2005-2015

Elizabeth M. Green | University of Oklahoma

In all homicides with a known victim/offender relationship, 16.3% were killed by an intimate partner (Cooper & Smith, 2011).While guns were used in 78% of all homicides in 2008, they were used in only 51% of IPH (Cooper & Smith, 2011). Allen and Fox (2013) study of married IPH cases found older male victims were overrepresented in being killed with handguns, while younger husband victims were more often killed with knives. Younger wives were overrepresented for strangulation and no weapons used, while older wives were killed more by long guns, blunt objects, and other weapons (Allen & Fox, 2013). IPH is more prevalent among intimates with a large age discrepancy (Garcia, Soria, & Hurwitz, 2007). Using a subset of data from the Uniform Crime Reporting (UCR) Program Supplementary Homicide Reports (SHR), 2005-2015, that included heterosexual single-offender/single-victim IPH relationships, we examined the association between age discrepancy between the victim and offender and offender sex and weapon usage in IPH. Binary and multinomial logistic regression models were estimated across 13,106 cases. The findings reveal statistically significant differences in weapon usage by age difference category and by offender sex. Specifically, female offenders that are younger than their male victims, have higher log odds of gun usage. Male offenders that are younger than their female victims, have higher log odds of using other weapons, relative to guns. The findings of this study have implications in criminal investigations and in educational prevention and social

system intervention policy to ultimately reduce IPH and save lives.

Communication and Combat: The Function of Ultrafast, Ritualized Striking in Mantis Shrimp

Patrick Green | Duke University
Sheila N. Patek | Duke University

Animal behavior theory predicts that animals resolve conflicts safely, yet many animals use potentially dangerous "weapons" during contests. How do animals use weapons to resolve conflict while minimizing costs? We used behavioral and biomechanical techniques to test contest assessment and resolution in the mantis shrimp *Neogonodactylus bredini*. During territorial contests, *N. bredini* presents visual displays and delivers high-force strikes with weaponized raptorial appendages. We first tested if visual displays signaled strike performance and could resolve conflicts without potentially-dangerous striking. We measured competitor's weapon morphology and maximum strike force, then analyzed size-matched contest behavior. Displays did not signal performance or resolve contests: morphology did not correlate with strike force and 33/34 contests involved striking. Interestingly, 94 % of strikes were exchanged on competitors' armored tailplates, a ritualized behavior we termed "telson parring". To test whether telson sparring lets competitors assess relative ability or simply inflicts costs, we matched contest dynamics to theoretical assessment models. Using correlations and a network analysis of behavioral sequences, we found that sparring functions to assess relative ability. Finally, we tested the energetic costs of striking. We filmed sparring strikes with high speed video, measured strike velocity, and used a biomechanical model to calculate strike potential energy. Energetic costs increased as body size increased; higher-energy strikes required a greater compression of the spring that powers appendage movement and resulted in constant strike velocity across size. Combined, these results reveal the behavioral and biomechanical function of high-force weapons and inspire future integrative work studying competitive weapon use.

Heightened Salience of Anger and Aggression in Female Adolescents with Borderline Personality Disorder: A Script-Based fMRI Study

Marlene Krauch | Universität Heidelberg
Kai Ueltzhöffer | Universität Heidelberg
Romuald Brunner | Universität Heidelberg
Michael Kaess | Universität Heidelberg
Saskia Hensel | Universität Heidelberg
Sabine C. Herpertz | Universität Heidelberg
Katja Bertsch | Universität Heidelberg

Intense feelings of anger and subsequent aggressive behaviors directed against the self or others belong to the core symptoms of borderline personality disorder (BPD). Despite its onset in childhood and adolescence research on neural correlates of anger and (auto-) aggression in

adolescents with BPD is still missing. 20 female adolescents with BPD and 20 female healthy adolescents participated in this functional magnetic resonance imaging study. A script-driven imagery paradigm was used to induce rejection-based feelings of anger which was followed by descriptions of auto-aggressive or physically aggressive reactions against the rejecting person. To investigate the specificity of the neural activation patterns for adolescent patients, results were compared with data from 34 female adults with BPD and 32 female healthy adults. Adolescents with BPD showed increased activations in the left posterior insula and left dorsal striatum as well as in the inferior frontal cortex. Also stronger activations in the middle temporal gyrus, superior temporal gyrus, and precuneus, central regions of the mentalizing network, were revealed. Notably, at least for the aggression phase, the specificity of these results for adolescents was confirmed by a significant group by age interaction. This is the first fMRI study investigating neural correlates of anger and aggression in adolescents with BPD. The results suggest an enhanced emotional reactivity to and higher effort in controlling anger and aggression evoked by social rejection situations at an early developmental stage in BPD. The results point to the need of appropriate early interventions for adolescents with BPD.

We Were Both Drunk: Examining Interactive Effects of Men's Acute Alcohol Intoxication, Masculine Gender Role Stress, and Women's Drinking on Sexual Aggression Perpetration

Ruschelle M. Leone | Georgia State University
Michelle Haikalis | University of Nebraska-Lincoln
Dominic J. Parrott | Georgia State University
David DiLillo | University of Nebraska-Lincoln

Scant research has elucidated individual differences in sexual aggression (SA) perpetration when alcohol is consumed by either the perpetrator or victim (i.e., discordant) or both parties (i.e., concordant). The present study sought to examine the effect of men's acute alcohol intoxication and laboratory based SA perpetration in the presence of a male peer as a function of their tendency to cognitively appraise gender relevant situations as stressful (i.e., masculine gender role stress; MGRS) and their perceptions of a woman's drinking. Participants were 156 men who completed a self-report measure of MGRS, were randomly assigned to consume an alcoholic or non-alcoholic beverage, and then engaged in a laboratory paradigm with a male friend wherein they had the option to show a female confederate, who reported a strong dislike of sexual content in the media, a sexually or non- sexually explicit film. Prior to selecting a film for her to watch, men were informed that the female confederate was randomly assigned to either an alcohol or no-alcohol beverage condition. Results indicated that intoxicated, compared to sober, participants were (1) more likely to perpetrate SA towards an intoxicated woman when they were high, but not low, in MGRS, and (2) less likely to perpetrate SA against a sober woman when they were high, compared to low, in MGRS. Findings suggest that concordant, but not discordant, drinking is more likely to be associated with SA perpetration in high MGRS men. Discussion will be guided by alcohol myopia theory and consider prevention implications.

A Putative Social Chemosignal Modulates Aggression in Humans

Eva Mishor | Weizmann Institute of Science
Aharon Ravia | Weizmann Institute of Science
Daniel Amir | Weizmann Institute of Science
Ethan Livne | Weizmann Institute of Science
Shani Agron | Weizmann Institute of Science
Yaara Endevelt-Shapira | Weizmann Institute of Science
Noam Sobel | Weizmann Institute of Science

Terrestrial mammals use their sense of smell for a variety of social interactions. Bodily-odors guide mammalian behaviors from simple automatic actions to complex behaviors. Growing evidence suggests that humans also communicate via chemosignals, yet the mechanisms remain poorly understood. Hexadecanal (HEX) has been proposed as a general mammalian chemosignal (Klein et al). Given that HEX is expressed in human secretions, we set out to investigate its impact on aggressive behavior. 127 participants (67 men) participated in a modified Taylor aggression paradigm where they were first antagonized towards their fictitious game-partner. Aggressive behavior was then assessed using the volume of noise-blasts applied by participants to their fictitious partners. In an across-subjects design, half of participants were concomitantly exposed to the odor of cloves and half to cloves with added undetected HEX. We found that HEX impacted aggressive behavior in a sex-specific manner: increasing aggression in women (Vol: cont=2.84 0.55, HEX=3.34 0.33, $t(15)=4.70, p<0.0003$) yet decreasing it in men (Vol: cont=3.57 0.34, HEX=2.91 0.39, $t(16)=-6.37, p<10^{-5}$), indicating a significant dissociation between the two sexes ($t(15)=-11.18, p<10^{-7}$). These results suggest that undetected HEX may indeed impact human aggressive behavior in a sex-dependent manner. In a separate experiment we measured ongoing changes in skin conductance, a measure for sympathetic arousal, under exposure to undetected HEX. We found an increase in the HEX condition for women, yet a decrease for men (Women: HEX-control=0.08 0.30, Men: HEX-control=0.25 0.42, $t(28)=-2.47, p<0.02$). This provides physiological support to the behavioral effect found. Currently, we are using fMRI to reveal brain substrates underlying HEX effect on aggressive behavior.

The Role of Female and Male Play Partners in the Development of Early Childhood Relational and Physical Aggression

Kristin J. Perry | University at Buffalo
Jamie M. Ostrov | University at Buffalo

The current study assessed the relations between male and female play partners and aggression in a short-term longitudinal study (N=164, 47.4% girls, Mage = 47.11 months). Female and male play partners were measured through observation sessions in the classroom and on the playground during unstructured periods where children could choose their play partners. These observations were reliable at Time 1 (T1) and Time 2 (T2), four months after T1 (ICCs > .91). The relational aggression (RA) and physical aggression (PA) subscales of the Preschool Social

Behavior Scale-Observer Report were used to assess aggression (Cronbach's $\alpha > .90$). A cross-lagged path analysis was used to examine the reciprocal relations between play partners and aggression while controlling for age. The measurement invariance of the model was tested across gender. The model was a good fit to the data [$\chi^2(4) = 9.99$, $p = .04$, CFI = .98, SRMR = .05]. Notable findings include, T1 male play partners predicted higher T2 PA ($\beta = .19$, $p < .01$), T1 RA predicted increased T2 female play partners ($\beta = .21$, $p < .01$), and PA at T1 predicted fewer female play partners at T2 ($\beta = -.25$, $p < .01$). Additionally, based on the measurement invariance analysis, the effect of T1 female play partners on T2 RA was moderated by gender. For boys, T1 female play partners predicted a decrease in T2 RA ($\beta = -.29$, $p < .01$) and for girls, there is a trend towards T1 female play partners predicting an increase in T2 RA ($\beta = .14$, $p = .10$).

Virtual Reality Game as Treatment Tool

Danique Smeijers | Vrije Universiteit Amsterdam

It is thought that anger is a difficult emotion to control, presumably because it is accompanied by intense impulses to strike back at others. The latter might be because anger is thought to be an approach-related affect. It is repeatedly found that individuals display automatic approach tendencies in response to positive stimuli whereas one tends to respond with automatic avoidance behavior towards negative stimuli. However, individuals high in trait anger seem to be an exception to this general rule: individuals high in trait anger tend to approach, instead of avoid, socially threating stimuli. Recent studies suggest that it may be possible to modify the motivational core of anger by training people to make avoidance movements towards angry faces. This training was found to be successful in reducing angry feelings and aggressive impulses. Based on this paradigm a game in virtual reality was developed as additional treatment tool for the treatment of aggressive behavior: the Virtual Reality Game Aggression Impulsive ManagEment (VR-GAIME). Approach motivation was trained by letting participant leaning forward towards avatars with happy facial expressions whereas avoidance motivation was trained by letting participants leaning backwards from avatars with angry facial expressions. The VR-GAIME was provided alongside general aggression treatment among forensic psychiatric outpatients with aggression regulation problems. Patients were randomly allocated to condition: VR-GAME vs. VR placebo game. The aim was to investigated the effectiveness of this treatment tool alongside general aggression treatment using a randomized controlled trail. The preliminary results of this innovative study will be presented.

Brazilian Studies Related to Sexual Aggression Against Boys

Jean von Hohendorff | IMED Passo Fundo, Brazil

Sexual aggression against children is a public health problem. Social and scientific attention to male victims still need improvement. In Brazil, we have been studying male victims since 2012. Therefore, we aim to introduce these studies. First, we performed a literature review. We found just one case study published nationally. Then, we adapted and evaluated a cognitive-behavioral

intervention model with three boys between 8 and 16 years. Results showed that boys may need more sessions to disclose their traumatic memories. Parallel to this study, we analyzed 239 cases report in a public health service. We found a predominance of white boys between seven and 12 years, victims of intrafamilial sexual aggression of two or more episodes perpetrated by males. Then, a single case study on the disclosure of male sexual aggression was conducted. Disclosure resulted from conversations between mother and son. The disclosure's impact on the mother caused guilt feelings and concerns with her son's sexuality. Our last study aimed to know the dynamics of sexual aggression against boys. Interviews were conducted with four male victims between the ages of 6 and 10, as well as four psychologists. Findings underscore the social invisibility of sexual aggression against boys. Taking together, our studies shows that perform researches with boys close in years to the sexual aggression experience is a challenge due to the low number of referrals as well as the disbelief and discrimination.

Children's Autonomic Functioning Moderates Links between Maternal Rejecting Attitudes and Preschool Aggressive Behaviors

Nicholas J. Wagner | University of Maryland

Research shows that the extent to which children's early experiences contribute to the development of aggressive behaviors depends on the psychophysiological regulatory capacities of the child. This study adds to this literature by examining the relations between mothers' rejecting child-rearing attitudes, assessed using the Child-Rearing Practices Report (Block, 1961), and children's aggressive behaviors, assessed using the Child Behavior Checklist (Achenbach, 1991), as well as if children's parasympathetic regulation, both at rest and in response to an anger-inducing film, moderate these links. Using data collected from 88 preschoolers, results show that mothers' rejecting child-rearing attitudes predicted more aggression at age 4. Children's RSA suppression moderated the effects of rejecting attitudes on aggression such that low levels of rejecting attitudes predicted less aggression and very high rejecting attitudes predicted more aggression, but only for children who demonstrated no RSA suppression (i.e., decrease) or demonstrated RSA augmentation (i.e., increase) in response to the anger-inducing film. Consistent with a differential susceptibility framework, this study found that rejecting child-rearing attitudes predicted children's aggression, but only for children who demonstrated an RSA response contrary to what might be considered 'adaptive' (i.e., moderate suppression). A failure to adaptively regulate during emotionally salient experiences is thought to be linked with aggressive behaviors via the promotion of stimulation-seeking behaviors or a failure to adequately inhibit inappropriate or aggressive responses. These processes may be exacerbated in caregiving environments characterized by rejecting child-rearing attitudes, whereas a supportive and validating caregiving may be particularly beneficial for children who have emotion regulation difficulties.