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Letter from the Student Editors:

We are happy to announce that after months of hard work we can finally welcome you to the second issue of the 3rd volume of the Gallaudet Chronicles of Psychology. In 2007, the Chronicles was created as a place where students can share their ideas, both research and theoretically oriented. The creators of the Chronicles hoped that it would become a journal reflecting the uniqueness of work, life, and learning that happens here at Gallaudet University and within the Deaf Community at large. In continuation of the original vision, we are striving to publish students' manuscripts that fulfill the requirements of professional publication, regardless of its form. We seek essays, personal narratives, theoretical and empirical writings, case studies, critiques, etc. We are happy to say that since the reactivation of the Chronicles, many students became actively involved in this project as both authors and reviewers.

The majority of our reviewers decided to stay involved in creation of the next issue of the Chronicles and a several new students decided to send us their manuscripts. This increased interest in publishing in our journal combined with a rigorous reviewing process resulted in decrease of the manuscript acceptance rate from 90% to 65% in this issue of Chronicles. From the submitted works, with the immense help of our invaluable reviewers, we decided to accept five diverse yet remarkable articles. Thus, in this issue, you will find a varied range of styles from theoretical essays to a critique and a mixed methods research study. First, the article of Dr. **Timothy J. Ainger** explores the complex cognitive processes involved in the development of adolescent antisocial behavior and potential implications on adolescent's brain development. Mr. **Nicolas Gala** explores and analyzes current research on the current conceptualization of hate crimes related to the legal and psychosocial implications for targeted minorities. Ms. **Kate Brown** discusses pain sensation, perception, and various types of analgesia as in why they are effective. Ms. **Rena "Liz" Courtney** examines the effectiveness of exercise on the human mind. Ms. **Yasmeen Alhasawi** investigates the cross-cultural differences in facial recognition of emotions.

Sincerely,

Joanna Dziura & Gregory Farber,
Student Editors-in-Chief

Letter from the Faculty Editorial Supervisor

I am excited about this newest issue of the Gallaudet Chronicles of Psychology and to see all of the work that has gone into continuing this publication. It remains a truly student-led effort under the leadership of the student co-editors, Ms. Joanna Dziura and Mr. Gregory Farber. They have been essential to the revival of the Chronicles and deserve recognition for their work in producing this issue. This publication would also not be possible without the participation of student authors and reviewers.

Part of the mission of the Department of Psychology at Gallaudet University is to instill in students a scholarly understanding of psychology and its application to the lives of deaf and hard of hearing persons through the production of scholarly works. The Chronicles is one avenue through which students can obtain hands-on experience with the process of producing scholarly works. The Chronicles aims to provide an atmosphere of collegial and supportive feedback to often first-time authors to orient them to the process of peer review and revising and resubmitting their work. Reviewers are provided with clear instructions and guidance on completing a peer review, giving them a critical lens through which they can then apply to their own research.

I encourage all psychology graduate students to consider getting involved in some aspect of future editions of the Chronicles, and I look forward to reading issues to come!

Sincerely,

Lori Day, PhD
Faculty Editorial Supervisor

Examining the Cognitive Processes Involved in the Development of Adolescent Antisocial Behavior: Potential Neuropsychological Implications

Timothy J. Ainger, Ph.D.

Department of Psychology

Antisocial Personality Disorder is a stigmatizing, persistent diagnosis that is assigned when an individual fits criteria that illustrate a pattern of lifelong deviance and aversion to societal normalcy; the etiology, trajectory, and neurological profile behind this diagnosis are decidedly less clear than other disorders. The concepts of choice, decision-making, and problem solving are ones involving attention, appraisal, the weighing of consequences, impulse regulation, and action. Healthy individual behavior is typically motivated by self-interest. Adults who perceive that they are acting in their own self-interest perpetually with little to no regard for the well-being of others, however, are considered disordered. Also, Childhood Disorders that are now considered to be major contributors to the development of Antisocial Personality Disorder, including Oppositional Defiant Disorder, Conduct Disorder, and Attention-Deficit/Hyperactivity Disorder will be discussed through the lens of factors contributing to decision making in an attempt to bring to light commonalities in cognition across these domains that are believed to contribute to the development of a lifelong disorder. Implications for the analogous deficiencies in executive dysfunction across individuals diagnosed with behavioral problems and individuals who have suffered debilitating injuries will also be discussed in the context of the severity of deficits in the cognitive processes of executive functioning.

Keywords: antisocial behavior, adolescent, development, cognition, neuropsychology

Adolescent Antisocial Behavior: Potential Neuropsychological Implications

Behavior is influenced by cognitive representations of the external world and individual choices of action (Shaver & Scott, 1991). It should also be assumed that appropriate decision making is based generally on some perspective of rationality, which although the definition of which has been debated, should generally contain some semblance of coherence, especially within the social realm (Tversky & Kahneman, 1981).

The processes that are involved, however, are just now beginning to be explored in empirical research; often, though, in the context of specific situations. These processes incorporate other frontal lobe functions, often identified in the literature and the practical field as “higher-order” functions, including impulsivity, thinking autonomously, and understanding motivation. In individuals who exhibit deficits in healthy functioning with regard to these areas, are physical differences actually at play? That is, do individuals with difficulty regulating higher-order cognitive processes actually possess a different neurological structure than individuals without said deficits?

Regulation issues in children’s higher-order processes may be linked to long-term, potentially life-

long, behavioral problems. With children and adolescents, identifying any precursors to longitudinal problems can contribute to the development of at least theoretical interventions designed to alter or interrupt the trajectory of negatively-directed development. The purpose of this literature review is to identify current perspectives, theories, and empirically-based suggestions of biological factors that may contribute to the development of antisocial behavior in adolescents.

Behavioral Disorders

Recent empirical evidence has illustrated the contributory nature of other behavior-related disorders on the development of antisocial behaviors. It has been oft-hypothesized that the presence of Conduct Disorder (CD) and/or Attention-Deficit/Hyperactivity Disorder (ADHD) has some predictive validity on the development of Antisocial Personality Disorder (ASPD) later in life. Some research has suggested that CD and ADHD are co-occurring in as high as 70% of sample clinic populations and although as many as half of the children that are diagnosed with ADHD are not diagnosable with CD, youth under age 18 who are diagnosed with CD more often than not also meet

diagnostic criteria for ADHD as well (Gatzke-Kopp et al., 2009; Klein et al., 1997).

Adult antisocial behaviors appear to be predicted by childhood aggression as well as hyperactivity (Lahey, Loeber, Burke, & Applegate, 2005; Hechtman, Weiss, & Perlman, 1984). In the absence of high CD ratings, high ADHD ratings still predict adolescent antisocial behavior (Taylor, Chadwick, Heptinstall, & Danckaerts, 1996). Youths who exhibit symptoms of CD before puberty will also exhibit a high percentage of ADHD behaviors.

Conduct Disorder is sometimes conceptualized as an adolescent version of ASPD. Some of the hallmark diagnostic criteria are present in both: disregard for societal norms, disregard for the welfare of others, lying and manipulation, and aggression. In a study by Kim-Cohen et al. (2003), there was a significant association between diagnosis of ASPD at ages 18-26 and an earlier diagnosis of DSM-III CD or Oppositional Defiant Disorder (ODD).

Lahey, Loeber, Burke, and Applegate (2005) set out to examine the influences of ADHD, CD, and ADHD+CD in children on predicting the development of ASPD in adulthood. Results indicated that although there were high percentages of adults with ASPD that had been diagnosed as having ADHD, there was not enough strength for ADHD alone to predict ASPD. Results also indicated that not satisfying criteria for CD was a strong predictor for not developing ASPD, even though CD criteria satisfaction was not enough alone to predict ASPD.

Finding also suggest though that youths who exhibit symptoms of CD before puberty will also exhibit a high percentage of ADHD behaviors, which may help us understand why the comorbidity of these diagnoses was so often seen as a theoretically valid predictor. The researchers caution however, that given their results, even though using CD as a predictor for the development of ASPD may yield relatively few false negatives, it may also yield many false positives; that is, CD alone as a predictor will tap relatively few children that do not exhibit CD behaviors but grow into ASPD, but will also tap a high percentage of children with CD that does not grow into ASPD (Lahey, Loeber, Burke, & Applegate, 2005).

Therefore, it may not be possible to gauge and predict the development of antisocial behavior on either CD or ADHD alone; however, when combined, they can prove to be a stronger predictor. The reasoning behind this is still not understood, though. Even if there are common correlates at play between CD and ADHD, there are still decisions that are made to engage in specific behaviors (more to the point, decisions are made to not inhibit the engagement in certain behaviors). The question now becomes what could be driving the

decision to engage in antisocial behavior, and what could influence those decisions.

Motivation for Decision-Making: Societal and Biological

Intrinsic motivation (e.g., performance in a task because of enjoyment in the task itself) does represent a form of "optimal experience"; that is, it is evidence of an individual engaging in something for an internal sense of pleasure or peace rather than a tangible reward. However, most human behaviors contain an element of extrinsic motivation (e.g., performance in a task in order to achieve an outcome) that represent an attempt to an end, or achievement, rather than simply an experience intrinsic to itself (Ryan & Deci, 2006; Csikszentmihalyi, 1990). That being said, with regard to externalized motivation across the spectrum of externalized behaviors, impulsivity is a core behavioral trait (Gatzke-Kopp et al., 2009). Impulsivity can be operationally defined as a preference for an immediate reward over a delayed, but larger, reward (Sagvolden, Johansen, Aase, & Russell, 2005). Both Attention-Deficit/Hyperactivity Disorder (ADHD) and Conduct Disorder (CD) have previously been characterized this way in previously published research. Particularly associated with perseveration for reward, CD has been shown to be associated with perseveration even in conditions when a reward may become unfavorable (Newman & Wallace, 1993).

Reinforcement is an integral part of the learning and motivation process. If an organism or individual receives pleasing reinforcement following a stimulus, there is an increase in the probability of that performed behavior being repeated out of expectation of reward. Research has shown that dopamine plays an important role on the biological level of learning, in that it has been shown to be released following both novel situations and after unanticipated rewards (Ljungberg, Apicella, & Schultz, 1992). However, if an expected reward is not administered following an action to which it has previously been assigned, a decline in the level of dopamine released has been shown to cause a prediction error, which motivates the organism/individual to update their expectations, or even learn a new behavior (Ljungberg, Apicella, & Schultz, 1992). In other words, not earning the expected results from a stimulus can contribute to a decrease in sensitivity to reward, and can also cause a shift in behavior. It is this way that impulsivity can develop as a byproduct of insensitivity to reward: a quick-change of behavior that is intended to seek stimulation because of a learned insensitivity to reward.

On the biological level, seeking this release of dopamine appears to influence behavior in a significant way. Having observed what they described as excessive reward-seeking behaviors in individuals diagnosed with

conduct disorder, O'Brien and Frick (1996), hypothesized that there may exist a hypersensitivity to dopamine or in central dopamine structures in this population. They drew support for this theory from animal research that suggested there was a lower threshold for reward-stimulus responding and behavioral promotion after the nucleus accumbens was infused with dopamine (Milner, 1999). However, more recent research has illustrated that what has been previously assumed to be a dopamine hypersensitivity may in fact be a reward insensitivity; this resulted in an increase in impulsivity and perseverated responding; evidence has shown that low levels of dopamine in a perpetually underactive reward system may have an aversive outcome (De Witte, Pinto, Ansseau, & Verbanck, 2003; Laakso et al., 2003). This evidence could suggest that chronic deficits in striatal-frontal pathway activity, leading to a decrease in feelings of reward in "normal" reward situations, may contribute to an increase in searching for exciting, novel stimuli that is coupled with a potential disregard for negative consequences; this approach to behavior and motivation is reflected in the diagnostic criteria and stereotypical symptomatic behaviors of CD and ADHD (Gatzke-Kopp et al., 2006).

The Cognition of Decision-Making

When discussing the process of decision-making, often it is conceptualized simplistically using colloquial vernacular. In reality, decision-making can be a complex process, involving time, several different mental representations, different cognitive processes, and the implementation of a problem-solving theory (Groome et al., 2006). The schemas that we unconsciously decide to employ take into account the information available about the situation at hand as well as the capabilities of the individual. Our previous experiences with similar problems or with problems in general can also influence our decisions. Source memory, the idea that a piece of information available in a situation will trigger a memory with a related piece of information of a situation that may or may not be analogous to the current moment, can also play a role. These experiences and memories can bias the way in which the mind represents a problem; this bias can be positive though, as it may activate useful information about particular situational constraints and strategies that have worked previously (Groome et al., 2006; Ohlsson, 1992).

In order to work a problem, the mind will evaluate the information that is presented and perform some type of means-end analysis. This type of analysis is a heuristic for aiding in solving problems by identifying the eventual goal, identifying distance between the goal and the current state, and identifying sub-goals by which progress can be measured in order to reduce the perceptions of difference between states (Groome et al., 2006). In further discussing ways in which problems can

be represented mentally (and subsequently worked toward an end), an analogy process can be implemented. In utilizing analogy as a problem solving technique, the mind identifies the problem to be solved and identifies an analog in the long-term memory store. Various elements of the current problem as well as the analog are examined, similarities between the stored analog and the current problem are identified, and the problem-solving techniques from the memory are translated and mapped onto the current situation (Anolli, Antonietti, Crisafulli, & Cantoia, 2001).

Reasoning, in general requires that the mind generate premises. From these premises, we must take into account through attending all of the information present in a situation, including taking stock of our own emotions and beliefs that are generated in the moment and recalled from memory through association (Groome et al., 2006). Any deficits in these reasoning and decision-making abilities (e.g., impaired ability to problem-solve, inability to appropriately identify goals, lack of capability for analyzing the repercussions of various courses of action) can have detrimental effects on overall executive functioning, regulating processes such as personality and behavior. In the absence of the capacity for normal behavior, abnormal patterns of behavior are present. In the case of an individual who does not appropriately value the norms and standards of society, is incapable of understanding the consequences of their actions, or is incapable of appropriately interpreting information present in a scenario in order to guide behavior (e.g., fearful stimuli), there can be an increased potential for engagement in antisocial behavior.

Autonomous thought. Autonomy, although literally meaning "regulation by the self", can be operationally defined as a self-determined act that reflects one's free will (Ryan & Deci, 2006; Pfander, 1967). It can be characterized by the integration of constraints placed on the individual and the needs of the individual, matched to potential processes and courses of action (Ryan & Deci, 2006). The neural processes of autonomous decision making rely more heavily on complex neural circuitry than traditional motivational processes do, and neural processes can differ depending on whether we are doing something we are instructed to do or if we are engaging in an activity of our own volition (Ryan et al., 2006; Walton, Devlin, & Rushworth, 2004). Such a complex coordination of neural processes would require the integration and coordination of cerebral regions involved in regulation, motivation, inhibition, and contextual affective information (Ryan & Deci, 2006; Chambers, Taylor, & Potenza, 2003; Bradley, 2000). Because of the potential for the involvement of these complex processes, executive functioning processes must be fully supported by both memory processes and

affective/emotional processes. Would any inhibited performance in either of these processes or damage on the neurological/structural level interfere with the processes of autonomous thought, problem-solving, or other facets of executive functioning (Ryan & Deci, 2006; Spence & Firth, 1999; Bechara, Tranel, Damasio, & Damasio, 1996)?

Neurological Emotional Regulation and Striatal (Amygdalic) Functioning

A number of recent studies have provided evidence on the existence and strength of the relationship of the amygdala to the appraisal and assignment of value to reward stimuli, to self-reward stimulation of the brain, and to appraise new stimuli and assign conditioned fear (Ledoux & Phelps, 2008). Findings such as these have led some researchers to conclude that the role the amygdala plays is an important one in the appraisal of sensory events and the assignment of affective significance (Ledoux & Phelps, 2008). Healthy amygdalic functioning is generally thought to be a requirement for the appropriate assignment of emotional value to stimuli, especially fear-based emotions. Ergo, it has been postulated that structural impairments to the amygdala will affect emotional appraisal and interpretation (Blair, 2004). Although it is also known that the amygdala plays an important role in emotional learning and modulation of memory, in the domain of antisocial behavior, it is often examined for the role it plays in the assignment of emotion to novel stimuli and how that contributes to the understanding of consequence. In other words, if there exists a malfunctioning or understimulation of the amygdala that contributes to a less-than-average, or nonexistent, assignment of fear to a situation, the individual will not be afraid of potential repercussions and will be less motivated to inhibit engaging in said activity.

If therefore the amygdala plays such a central role in the appraisal of stimuli, assignment of reward, and the eliciting of emotional reactions, how could its function vary in individuals who exhibit marked behavioral problems with regard to these functions? In ASPD, the disturbances are at least partly accounted for by neural disruption (Raine & Yang, 2006). Especially with regard to appraisal and the assignment of fear to novel stimuli, if we are unable to learn that various stimuli can no longer indicate the presence of danger, there would be a variety of innocuous stimuli eliciting varied fear responses (Ledoux & Phelps, 2008); conversely, if an individual is unable to appraise, assign, and interpret fear in the same way as a normal individual, they would respond fearlessly to a vast array of stimuli. Is this not what is observed in irresponsible and impulsive behavior in response to short-term goal achievement with a lack of concern for consequences? Such an anosognosia is a pattern that is typified in individuals with comorbid CD

and ADHD that exhibit adolescent antisocial behavior, as well as adults properly diagnosed with ASPD.

Healthy amygdalic functioning is generally thought to be a requirement for the appropriate assignment of emotional value to stimuli, especially fear-based emotions; ergo, it has been postulated that structural impairments to the amygdala will affect emotional appraisal and interpretation (Blair, 2004). The emotional implication of amygdalic structural impairment is that with improper functioning, the individual would be unable to appropriately and appropriately assign emotions to various stimuli. Without the assignment of fear and other emotions to various stimuli, behaviors that would normally be defined as “risky” or “irresponsible” are not viewed that way by the ASPD client because they would not be able to fear the consequences or experience the emotional connections that are triggered by the assignment of a fear-based emotion (e.g., shame, guilt). Damage, impairment, or chronic deficit to the amygdala (and subsequently, the striatal-frontal pathway) may result in an increase in searching for novel stimuli coupled with a general disregard for consequences, particularly negative ones (Gatzke-Kopp et al., 2009).

In other words, an individual with deficient or abnormal functioning in the amygdala would be more likely to engage in behavior that others would find emotionally or morally reprehensible, while they themselves had no reaction, because the outcomes of their actions would hold no emotional meaning to them. This situational approach pattern is mirrored by the typical behavioral patterns in individuals with comorbid ADHD and CD, and is reflected in the symptomology for these disorders (Gatzke-Kopp et al., 2009). This is also one of the behavioral theories behind individuals with ASPD being emotionally stunted or cold, and in severe cases, predisposed to commit aggressive, violent crimes: because they do not, or cannot, emote in relation to the incident. In a Positron Emission Tomography (PET) study, Raine, Buchsbaum, and LaCasse (1997) found asymmetrical and abnormal amygdalic functioning in individuals that had been convicted of murder. Ergo, the assignment of emotion to a stimulus does play a role in directing the individual to inhibit or not inhibit their behavior. The emotional response component, though, is not the end of the procedure; there needs to also be a decision-making process that is partnered with emotional response to guide conscious action.

Effects of Frontal Lobe Dysfunction on Cognition

The frontal lobes of the brain have come to be viewed as being responsible for all of the higher-order aspects of thought in humans; specifically, the functions that supervise and regulate cognition, including planning ability, appropriately using attention, being able to shape information and apply it appropriately to novel situations, and regulating goal-directed behavior

(Groome et al., 2006). These higher-order aspects of thought also include situational processing that is integral in social functioning as well as everyday problem-solving. Frontal lobe damage has been shown to cause a change in personality as well as perceptual skills, memory, and to impair capacity for decisions (Schindler, Ramchandani, Matthews, & Podell, 1995).

Temperament can be operationally defined as a construct that comprises a number of trait dimensions that depict differences on an individual level in various types of affective and behavioral responsiveness, as well as styles of self-regulation (Giancola, 2000; Thomas & Chess, 1977). In individuals with deficits in executive functioning related to impulsivity, self-regulation, and temperament, empirical links have been made to antisocial behavior: a higher degree of behavioral problems, delinquency, aggression, and substance use problems (Giancola, 2000; Brook, Whiteman, Finch, & Cohen, 1996; Biederman et al., 1995). People in possession of these vulnerabilities of temperament will be more likely to experience a negative affect, in turn giving rise to the likelihood of expressing antisocial behaviors (Giancola, 2000).

As has previously been mentioned, current research suggests a high level of correlation between co-occurring ADHD and Conduct Disorder with the development of antisocial behaviors (Gatzke-Kopp et al., 2009; Klein et al., 1997). In individuals with executive dysfunction, cognitive distress of note also tends to include a reduction in the ability to sustain attention as well as an inability to override/inhibit impulsive and automatic responses (known as disinhibition), and high levels of distractibility (Groome et al., 2006).

A number of studies examining ecological influences on the development of antisocial behaviors; that is, the effect that the environment around the child has on behavioral development. Family dynamics, the neighborhood, and the individuals themselves have been shown in research to be contributory factors toward the development of antisocial behavior in children (Leventhal & Brooks-Gunn, 2000). Adverse family situations (e.g., single-parent family structure) may also pose a risk for the development of antisocial behaviors, in addition to the influence of the environment (Breivik & Olweus, 2006). Ultimately though, the influences of family risk factors, social processes, and overall environmental influence may be conditionally dependent on the individual's antisocial behavior vulnerability; one of the most important risk factors for the development of antisocial behavior is the presence of a high level of impulsivity (Neumann, Barker, Koot, & Maughan, 2010).

In addition to problems in planning, a lack of insight and awareness, aggression, poor/shallow affect, perseveration, distractibility, and a lower concern for the rules of society, impulsivity is a key element of the

characteristics of "dysexecutive syndrome" (Groome et al., 2006; Burgess et al., 1998). This theoretical syndrome incorporates the cognitive processes that are affected by a dysfunction of executive functioning. Of note is the large number of symptoms that have been empirically linked to antisocial behaviors in both children and adults, as either descriptive/diagnostic features (e.g., aggressiveness, shallowing of affective responses, lack of concern) or as predictive variables (e.g., perseveration, inability to inhibit responses, poor decision-making abilities).

Summary and Implications for Future Research

There exist among us individuals whom society would describe as "lacking a conscience." There appear to be behavioral issues that correspond with this description, potentially related to executive functioning deficits (caused by impaired development or other events). The behavioral pattern that is exhibited by these individuals contains elements that are analogous to the behavioral patterns of individual who have experienced trauma to the executive functioning area of their brain (and indeed, have served the field with a mechanism for identifying this behavioral etiology). Behavioral patterns and deficits of these individuals have been examined through the lens of individuals with physically damaged brains. Analogous behavioral performance patterns have also been identified, and empirical conclusions have been alluded to herein. Due to the fact that these individuals exhibit deficiencies in impulsivity, attention, distractibility, lack of concern for others, and abiding by the rules of society, it can be theorized that the structures associated with cognition may have developed to the same level of performance as individuals with executive brain dysfunction.

Identifying these factors and how they manifest in adolescents is of paramount importance within the field. Although a neurological predisposition for engaging in antisocial behavior may be present, development of effective interventions may help remediate negative behaviors.

The implications for future research are exciting within this field. The genesis of these problems, for one thing, is still yet to really be identified. It is recognized, however, that the environment in which the individual is raised as well as other social factors can play a role in the development of antisocial behavior. To what end, therefore, does the environment mitigate the development of these antisocial behaviors?

Future work examining specifically deficits in cognitive processes not related to acquired injury, but instead to persistent development, would make a significant contribution to the field and the understanding of why executive dysfunction is so behaviorally analogous to impairing mental health.

diagnoses (i.e., ADHD, Conduct Disorder, Oppositional Defiant Disorder, and Antisocial Personality Disorder).

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Hate Crimes: A Conceptual Overview and Analysis

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The following article provides an overview of the current conceptualization of hate crimes related to the legal and psychosocial implications, as well as an analysis of the functionality of current models and definitions within legal and psychosocial contexts. Analysis includes a review of both the broad legislative and sociological definitions presented for hate crimes, description of the primary characteristics of those who commit hate crimes, current theories on the cause of hate crimes, and an appraisal of current intervention strategies. This paper is intended to analyze as well as review the current legal and psychosocial understanding of hate crimes in an effort to expose additional legal and psychosocial factors that have otherwise been omitted from legislation and intervention.

Keywords: attitudes, deafness, social perception, Deaf community, Deafhood

There are many different examples of hate crimes that occur today. For example, a Middle Eastern man walking home is brutally attacked and killed only, because of his ethnicity. Similarly, a homosexual couple's home is vandalized and destroyed simply, because of their sexual orientation. Hate crimes, as highlighted by these examples, are not specific behaviors to be targeted by intervention, but are the results of a wide range of motivation and beliefs. Moreover, the latter example addresses the issue that hate crimes go beyond race and can encompass issues related to both sexual orientation and gender. Additionally, hate crimes have increased by almost a third and approximately 74% of hate crimes are not officially reported to the police (Wilson et al., 2014). For these reasons, among others, both the legal system and society in general should take interest in the contemporary conceptualizations of hate crime. In an effort to promote the current legal and social issues related to hate crimes, it is important to provide an analytical overview of how hate crimes are defined, why they occur, and how they can potentially be addressed.

History of Hate Crime Legislation

In 1968, the United States government passed the Civil Rights Act, permitting the prosecution of anyone who interferes or attempts to interfere with another person's federally protected activities (e.g. education, patronizing a public place/facility, applying for employment, the ability to be a juror, and the right to vote) based on the person's race, color, religion, or national origin (Perry, 2001). Despite the clear limitations of not addressing many of the hate crimes

observed today and the restrictiveness of the crime to only the federally protected activities, the Civil Rights Act of 1968 is arguably the starting point for hate crime legislation. The basis for this argument is within the legislation's recognition that a crime can be committed based primarily on a person's race, color, religion, and national origins. Notwithstanding the legislation's protection of these four characteristics within the context of federal rights, many of the hate crimes today are committed without the intent of preventing federal rights. It would not be until 1990, with the Hate Crime Statistics Act (HCSA), that the federal government provided the first definition of hate crimes and mandated the attorney general's office to collect statistics on hate crime (Nolan, Akiyama, & Berhanu, 2002).

The HCSA defines hate crime as crimes that manifest evidence of prejudice based on race, religion, sexual orientation, or ethnicity (US Congress & House Committee on the Judiciary, 1988). It is evident by this definition that a strong motivational reason for the crime is based on the victim's characteristics (e.g., race, religion, sexual orientation, or ethnicity); however, this remains one of the only clear points made in the definition and lacks clarifying the motivation or characteristics of the perpetrator. It is important to remember that the HCSA's primary intent was not to provide a definition but rather to mandate statistical analysis of the crime. Therefore, the definition itself has several ambiguities. First, the definition does not clarify what specific behaviors constitute a hate crime. It is not clear if the incriminating behavior have to be directly against a person or if hate crimes also encompass acts

against a person's property (e.g., vandalism). A second ambiguity relates to the use of the word prejudice. It is unclear if all prejudicial activities should be classified as hate crimes; more fundamentally, it is not clear what prejudice means within this context. Overall, the HCSA's definition of hate crime lacks a behavioral component that leads to a vague definition.

In 1994, the definition of hate crime was clarified with the implementation of the Violent Crime and Law Enforcement Act of 1994 by congress (Congress, U.S., 1994). Now, the definition of hate crimes came to include any federal crime caused by, or persevered to be motivated by, a person's race, color, religion, national origin, ethnicity, or gender (Windlesham & Windlesham, 1998). Still, it would not be until 2009, 41 years after the Civil Rights Act was signed, that the Matthew Shepard and James Byrd, Jr. Hate Crimes Prevention Act would expand on existing hate crime laws. The act forced federal legislation to apply hate crimes to crimes motivated by a victim's gender, sexual orientation, gender identity, or disability, and drop the prerequisite that the victim be engaging in a federally protected activity (Perry, 2001).

While the aforementioned federal regulations provide a functional legal definition of hate crimes, the definition is still evolving with changes in society, such as including cybercrime and including more target populations. With a better understanding and working models of why hate crimes occur, contemporary definitions of hate crimes are starting to include more of a sociological perspective (Duneier, Appelbaum, Carr & Giddens, 2012). For this reason, it is expected that with the continued development of society's understanding of hate crimes, future definitions of hate crimes will come to include more sociological perspectives in order to provide foundational understanding of why hate crimes occur.

Statistics and Reporting

As with any other crime, the standardization of collecting the incidence of hate crimes is challenging and therefore variable. That is, HCSA mandated that statistics be collected on the crime, but how each state is to collect or categorize the crime is individualized. As a result the statistics of hate crimes are disorganized and varied. The following are the most current statistics for the national use of hate crime legislation and protected groups, as well as the nationwide percentages of the crime itself.

Nationwide statistics on policies. The following statistics are based on the Anti-Defamation League's database of hate crime statutes by state. Only 45 states and the District of Columbia have statutes that categorize hate crime (i.e., the states that do not have legislation include Arkansas, Georgia, Indiana, South Carolina, and

Wyoming). From this, 32 states cover disabilities, 31 cover sexual orientation, 28 cover gender, 16 cover transgender/gender-identity, 13 cover age, 5 cover political affiliations, and 3 cover homelessness (Anti-Defamation League, 2006). It is clear from comparing the states that have no legislation on hate crimes to the various statutes across other states that there is no current standardization of enforcing or defining what constitutes a hate crime.

Nationwide statistics on the prevalence of hate crimes. In 2013, the Federal Bureau of Investigation (FBI) published a report specific to hate crime statistics. The FBI reported that in 2013, there were a total of 5,928 hate crime incidents involving 6,933 offenses (examples of offenses that co-occurred include vandalism, intimidation, assault, rape, and murder). Of the 6,933 reported hate crimes, 5,922 were single-biased incidents: 49.3% involving race, 20.2% resulted from sexual orientation, 16.9% were motivated by religious bias, 11.4 % stemmed from ethnicity/national origins, 1.4% by disability bias, and 0.9% where motivated by gender bias (FBI, 2013). With regards to the target of hate crimes, the FBI (2013) reported that there were 4,430 hate crime offenses against an individual and 2,424 offenses against property

In regards to location of hate crime, the FBI (2013) reported that 31.5% of hate crimes occurred in or near residence; 18.1% took place on highways, roads, and alleys; 8.3% took place at a school or college with the remaining percentage split across places of worship, parking lots, bars, government and office buildings, and other locations. The most recent statistics indicate that about 68% of offenders were 18 years-old (FBI, 2013). Finally, in relation to race of offenders, the FBI (2013) reported that of the known 5,814 offenders, 52.4% were white and 24.4% were black or African American. Overall, it appears that hate crimes are mostly motivated by race, involve crimes against a person, occur mostly in or near residential areas, and offenders are mostly white males above the age of 18 years-old (FBI, 2013).

Conceptualization of Hate Crimes

Developmental Trajectory. Unlike other crimes with distinct developmental patterns associated with the crime, hate crimes do not produce a common developmental trajectory (Perry, 2001). That is, offenders come from many different backgrounds and do not express any standard experiences as a child. For this reason, hate crime offenders are oftentimes classified based only their similarities related to motives and type of offence. For example, the Partners Against Hate (2003) have identified that 80 percent of offenders also committed other crimes against people (the most common being intimidation) or were associated with crimes against property (e.g., destruction and

vandalism). However, most hate crimes are committed by young individuals that were law abiding and harboring some form of hatred for members of a particular group (Partners Against Hate, 2003). However, because there are no clear developmental trajectories, the offenders are better explained by the characteristics that define their crime.

McDevitt, Levin, and Bennett (2002) conducted a study that supported a categorization of hate crime offenders into one of three groups. The three groups included those that did it for the thrill and excitement, those that committed the crime based on feelings that they were defending their turf, and those that were trying to rid the world of a particular group deemed evil or inferior. After reviewing a total of 169 cases from the Boston Police Department, the study found that the most common reason provided for a hate crime was due to the thrill and excitement (McDevitt et al., 2002). The least reported reason was, because of a belief that the victim was part of an evil or inferior group. In the excitement group, most offenders left their neighborhood to search for their victim and the victim was identified in some way as being different from the offender. In reviewing the data, the study identified that those committing the crime based on turf did so with the notion that they were protecting their area from perceived intruders or outsiders. A subgroup of the offenders that committed the crime based on turf includes a retaliation group. In this subgroup, offenders reported that they committed the crime, because they themselves had been a victim of a hate crime or committed the crime in prevention of a rumored/threat of a hate crime.

Hate crime offenders can also be categorized based on the type of hate crime they conduct. Kurtz (1999) postulated four types of hate crimes: a) defensive-hate crimes, defined as hate crime targeting a particular "outsider" deemed as a threat or challenge to the offenders neighborhood, b) Hate crimes, defined as criminal offences motivated primarily by a perception that a victim is different in some way from the perpetrator, c) mission hate crimes, or those that are acts of war against any and all members of a particular group of people, and d) thrill hate crimes, conducted mostly by young offenders who committed the crime for the excitement. With these types of hate crimes, there is a linear pattern between the type of hate crime and the reasons behind committing the crime. For example, the offenders that report committing the crime because of the thrill for doing are committing thrill hate crimes. Similarly, those committing defender-hate crimes are doing so because they have a perceived threat or have experienced hate crimes themselves. The two exceptions to this linearity include the general hate crimes and mission hate crimes.

In relation to general hate crimes, the driving force is the notion that an individual is different in some way

compared to the perpetrator. As a result, victims are singled out and targeted. A quandary to research is that there is no single reason or common trend among the perpetrators of general hate crimes (Hall, 2013). As a result, it can be proposed that this type of hate crime is more impulsive and spontaneous compared to other forms. With mission hate crimes, the offenders believe are far more radical, often times involving hallucinations and delusion that a higher being is telling them to ride the world of a specific "outside group". Within these offenders, the ideology extends into the need to eradicate a particular population to better the world in some way. The perpetrators rarely act alone and often form groups to share and strengthen their beliefs. Mission hate crime offenders are relatively rare and often involve mental disorders (Kurtz, 1999). However, in application, groups such as the Ku Klux Klan and the activities associated with the Holocaust can be examples of mission hate crimes.

Despite no common developmental trajectory associated with offenders of hate crimes, having an understanding of the various typologies permits the ability to extrapolate possible developmental characteristics of some offenders. For example, thrill hate crimes involve the need for excitement, alludes to characteristics such as impulsivity, elevated sympathetic nervous activity (e.g., having a heightened baseline for arousal requiring more dangerous, risky, and daring activities to arouse the system further), and poor executive functioning. Moreover, thrill hate crime offenders expressed that they often feel the thrill when they leave their neighborhoods and search out their victims. This type of behavior involves premeditative practices such as planning, stalking, and staking out areas for potential targets. Such behaviors involve organized thought processes and the integration of information. Thus, it can be suggested that offenders of this type of hate crime express personality traits of intellectualization and higher levels of cognitive abilities. Similar characteristics are suggested by offenders of general hate crimes where the crime is impulsive.

Several unique developmental characteristics are suggested with offenders of defensive-hate crimes. It can be suggested that with the perception that the victim is a threat to the perpetrators immediate environment, characteristics such as emotional deregulation, cynicism, lack of awareness to diversity, and fear are possible traits within these offenders. Unlike thrill hate crime offenders, defensive-hate crime offenders appear to have a level of disorganized thoughts, possible paranoia, and hypersensitivity. These qualities mixed with emotional deregulation and cynicism may produce the thoughts that the target is a threat. Alternatively, having experienced hate crimes themselves, the subgroup of retaliation hate crimes, suggests that those offenders have misplaced

emotional expression, impulsivity, and overgeneralization of behavior and experiences.

Finally, mission hate crime offenders suggest their own unique sets of developmental characteristics while building on the characteristics expressed by the other offenders. The inclusion of delusion and hallucinations, suggest a high level of disorganized behavior and thoughts (e.g., psychotic symptomology). Moreover, these offenders may express higher levels of perseveration, obsessions, and false sense of grandiosity and arrogance. It is highly suggested that traits associated with narcissism and antisocial personality disorder are dominant in these types of offenders. Similarly, personality distortions, low self-esteem, and mental malleability are also suggested characteristics. These traits are associated with the pattern that mission hate crime offenders often utilize groups, group polarization, and group think to foster and strengthen their distorted beliefs. In whole, several projected developmental characteristics across hate crime typology include impulsivity, narcissistic and antisocial traits, lack of exposure to diversity, low self-esteem, and being raised to believe that diversity is bad.

Relevant Theories

There are many models and theories that attempt to explain the underlying reasons for hate crimes. Each theory has its own mechanisms and explanation; however, across theories there is one commonality. That is, leading models of hate crimes involve a macro-level sociological viewpoint. Whether attributing hate crimes to a sociological ideologies not being followed, or cultural strain, the fundamental principle from these models is that hate crime is the result of a cultural phenomenon. Still, each theory fails to entirely captivate hate crimes in general.

Perry (2003) hypothesized that hate crimes are the results of conflict with a sociological ideology of what society should be. That is, within a society there is a hierarchal state that is taught and subliminally transferred into each person. Cultural rules related to sexuality, gender, race, and class are instilled into us at birth and are strengthened as we continue to develop and interact with society. The intention of these rules is to make sense of the world that we live in. As a side effect, however, society becomes stratified by social classifications (Omi & Winant, 1994). Among the many classifications are the dichotomies of man and women, straight and gay, and white or black. Deriving from these categorizations are the believed behaviors and characteristics that make each label unique. Lorde (1997) expands on this notion by stating that from these believed characteristics, a generalized "norm" develops dictating how society should function. Finally, individuals try to maintain a sociocultural homeostasis between their own behaviors and the expectations

generated by the perceived cultural norms. Hate crimes are the result of being faced with a conflict to these norms and the perceived threat to sociocultural structure (Perry, 2003).

A possible example of the above model includes a homosexual couple that is physically assaulted because of their relationship. The offender's perception of the cultural norms is that a relationship should remain between a man and women, but when confronted with this conflict, the perpetrator lashes out and attacks the couple in order to promote and reinforce conventional ideology. Such a model is supported by how 50 percent of hate crime offenders are under the age of 25. During these earlier developmental years, identity and the internalization of cultural rules and norms play a major role in adolescent behavior (Morris, Eisenberg & Benjamin, 2011). While this model presents a strong philosophical argument for the development of hate crimes, and draws support from the statistics, it is not without questions or debate.

First, if hate crimes emerge due to conflicts between perceived cultural norms, the amount of hate crimes should be much higher and show a more diverse demographic for the perpetrator. The model does not take into account why conflict with societal norms sometimes leads to hate crimes and sometimes does not. Furthermore, with such a generalized theory, it would be predicted that men and women, as well as many other races, would engage in the activity similarly. In general, a theory such as the one provided by Perry would generate a wider and more even array of targets, reasons, and perpetrations. Statistics show the exact opposite, with most hate crimes perpetrated by white men acting for cultural reasons.

A second conflict with Perry's (2003) theory is that it fails to explain thrill hate crimes. If the theory held true, the explanation provided by all hate crime offenders would be that the victim was not following social norms. Instead, we see a variety of reasons for why hate crimes occur. Specifically, thrill hate crime offenders state directly that they engage in the crime for the thrill and excitement. Thus, Perry's (2003) theory may explain why the target is selected (i.e. the offender picks individuals that do not match social norms), but neglects the underlying reason for the crime (i.e. the stimulation and excitement). Therefore, when integrating information, it becomes apparent that targets may be selected based on not fitting into perceived social norms, but there is still an underlying reason for the crime itself past the sociological reasons. Regardless of the limitations, Perry's (2003) sociological explanation of hate crimes remains one of the most defined and practical models.

Alternatively, a second theory that attempts to explain hate crimes is strain theory. Sexton (2011) postulated that hate crimes are symptoms of the strain

placed on a community. Communities that have a functional and solidified social and economic structure tend to have less strain compared to those where the community system is off. Contra, a neighborhood with a very low socioeconomic status, limited opportunities, and lack a clear social structure faces a larger amount of strain. Strain can be caused by the lack of basic needs, lack of social support, lack of personal responsibility, feelings of uselessness and learned helplessness, cultural racism, and prejudice. Hate crimes are the result of this strain and the perceived inequality between the perpetrator and the victim. For example, take an offender that has a strong feeling of suppression who also feels they cannot express themselves freely observe a gay couple walking down the street. Given the strain caused by the inability for the offender to express themselves and the perceived inequality, the perpetrator attacks the gay couple in the example.

Overall, strain theory has been a powerful model of why many different types of crimes occur. However, the applicability of strain theory to hate crimes is questionable. In Sexton's (2011) study, several variables related to strain were observed in relation to the number of hate crimes within a community. Results showed a large amount of variability, suggesting that stress and strain alone were not enough to predict specifically hate crimes. A second criticism of strain theory as a model for hate crime emerges with review of the demographic information related to who is most likely to engage in a hate crime. Young white men from a wide variety of backgrounds and socioeconomic status commit hate crimes more than to minority populations and other age groups. Therefore, if strain theory was applicable statistics would show that those individuals in a more suppressed and lower socioeconomic status would have a higher rate of offences. Similarly, strain theory fails to explain why wealthy, privileged, and educated offenders would commit such crimes.

Due to this crime being recently recognized by law and the remaining ambiguity within the definition of hate crime, trying to develop or apply a theoretical model to explain the origins of hate crime remains difficult. From what is known of the crime, components of both the sociological and strain models are applicable in addition to other theories, such as arousal theory and humanistic theories. In turn, hate crimes may be a more complex type of crime that includes many levels of explanation. To start, a person may need to engage in higher risk behavior to gain a feeling of arousal. This added to the conflicts and strain caused by cultural inequality may account for the rational for an individual to attack another at the basic level. At this level the reason for committing the crime match the explanations for why many other types of crime occur. Where hate crimes differ is in the target. Now, with the motive to commit

the crime, the sociological model allows for a target to "stand out" for the offender to attack.

In short, there are many factors that drive a person to commit a hate crime, as evidenced by the varied demographics of the offenders, and the different models attempting to explain hate crimes. In turn, future research should investigate the interaction effects of factors such as strain, conflicts of social norm, and arousal theory on hate crimes.

Interventions

Without a solidified definition of what hate crimes are, legislation is malleable on the types of punishment that can be given. Moreover, each state has their own definition of what entails a hate crime and their own punishments. Ironically, despite the large and recent discussion on hate crimes, there is a paucity of literature explaining the legal ramifications of the crime. Further discussion is needed pertaining to the punishment for a hate crime. Despite these legal limitations, there are alternative strategies to prevent and reduce hate crimes.

Law Enforcement. As of 2015, under title 18 USC §249-Hate Crime Acts there are two possible punishments for hate crimes depending on the severity (Title 18 United States Constitution). For hate crimes that do not include sexual abuse, kidnapping, or murder, or the attempt to do any of the previously stated, the punishment is no more than 10 years in prison and monetary compensation determined by the courts. Hate crimes that include or attempt to include kidnapping, murder, or sexual assault can result in imprisonment for life and/or monetary compensation determined by the courts. Federal legislation continues to develop as evidenced by the historical development of the definition of hate crime. It is important to remember that each state has their own punishment for hate crimes that may or may not match the punishments established by the federal government.

Prevention and Rehabilitation. There are many different types of rehabilitation programs for hate crime offenders nationwide. Iganski et al. (2001) conducted a nationwide study on the rehabilitation methods utilized with hate crime offenders. The study looked at programs used in North America, New Zealand and Australia, Europe, and the United Kingdom. Results indicated an array of services offered as well as the success rate of the programs presented. To start, results indicated that Australia, New Zealand, and Canada do not have any programs specific to the rehabilitation of hate crime offenders. Within the United States, most programs were directed at youth offenders and were identified as not successful.

Programs within Germany and Sweden also targeted young offenders (Iganski et al., 2001). One particular

program titled Taking Responsibility was established in 2001 and uses social therapeutic group interventions. The target population is youth males that committed violent crimes with racist and xenophobic motivation. Therapy is offered in a series of weekly meetings where offenders voluntarily attend a total of 20 meetings. The sessions utilize group dynamics to generate alternative solutions to violence and conflict resolution. Furthermore, the families of the offenders are encouraged to be involved and after completing the therapy, offenders have 12 months of additional support if needed. Results of the study indicated that the rates of recidivism for those who went through therapy were low compared to offenders who did not attend the therapy. The following are several examples of nationwide programs identified by Iganski & Smith (2001) that were effective in their approach.

One program identified in Sweden titled EXIT provides support to young adults who no longer want to be part of racist or hate groups. Many of the staff and counselors within EXIT are former offenders who want to prevent future youth from becoming involved in hate groups. The program itself provides individual therapy that focuses on building motivation, disengaging from hate groups, creation of a social support system, and stabilizing the clients in their new life style. The program has yet to conduct research on its effectiveness; however, a preliminary investigation suggests that out of 600 individuals who sought help, only two returned back to the hate group they started in.

Through Iganski et al. (2001) additional programs where identified within Britain, the first was the Diversity Awareness and Prejudice Pack (DAPP) and the second was the Promoting Human Dignity program. DAPP focuses on offenders who were motivated based on race, sexual orientation, and religiously motivated hate crimes. The program includes seven steps that focus on both intrapersonal (thinking skills, identity formation, avoidance of relapse) and interpersonal (victim empathy, socialization training, targeted violence, and education on prejudicial attitudes) skills. The program is deemed effective and is continuously monitored and adapted based on the nature of their participants. Promoting Human Dignity covers the same topics as the DAPP but involves weekly, two hour sessions for 14 weeks.

The aforementioned programs were only examples of the many programs and countries Iganski et al. (2001) reviewed. Most importantly, the study suggests several key features that should be included in future treatments and intervention programs. Several suggestions included: a) programs for hate crime offenders be established in each jurisdiction, b) promotion of more research on the crime itself, c) programs should have clear theoretical bases, d) practices should be developed based on good practices and models, e) existing, and future, programs should be systematically reevaluated, f)

there should be post-programmed follow up and check ins of offenders, and g) further research is needed to review the importance of both therapeutic and/or educational approaches to intervention and prevention.

Conclusion

It is clear from the literature and laws that both the field of psychology and the field of law enforcement have an exponentially growing understanding of hate crimes. At the same time, hate crimes remain a relatively new crime to the books; therefore, legislation and conceptualization of the crime is far from over. As a result, future research should continue to investigate the motives behind the crime, seek to identify the intrapersonal characteristics of the offenders, and most importantly develop a unified functional definition of the crime. Moreover, further action should be taken, either federally or through societal change, against the four states that remain absent of hate crime legislature. Finally, with models of effective prevention and rehabilitation, there should be an effort to promote the rehabilitation of offenders and awareness of hate crimes to the general public.

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Pain Sensation, Perception, and Analgesia: How Belief Influences the Process

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This is a review of how pain is both sensed and perceived, the difference of which is crucial for clinicians to understand in working with patients with chronic or acute pain. The article then discusses various types of analgesia and why they are effective, which again is crucial in making recommendations when working with medical populations. Finally, there is a discussion of how belief of efficacy of treatment, the placebo effect, and optimism each interact with effective treatment. It is important for psychologists to understand this interaction so that they are able to provide the best services possible to people with medical issues as well as increase the effectiveness of medical treatment.

Keywords: pain, analgesia, treatment belief, placebo effect

Pain is a necessary, if unpleasant, response to noxious stimuli. While pain can present itself without the presence of a physical stimuli and be purely psychological (i.e. somatic pain), pain even with an apparent physical cause is a subjective experience (Melzack & Katz, 2001). With other sensory stimuli, there is a much more objective experience. In normally functioning people, objects are reported to be the same size and sound are reported to be the same volume across the group. However, if the same group were to be given identical electric shocks, there would be a wide variety of responses after being asked how much that hurt. In fact, though the mechanism for pain sensation is fairly universal, the perception of pain and the effects of pain relief vary significantly across the population.

Nocioception

Pain Sensation. Pain sensation is the physical process of how pain signals are sent through the body from the source to the brain and how it is then interpreted by the central nervous system. This process is referred to as nocioception. Nociceptors are touch receptors with bare nerve endings which respond to stimuli that are (or could be) harmful to the body (Wolfe, Kluender, & Levi, 2010). In general, nociceptors respond to stimuli that can cause tissue damage, such as external injury or extreme temperature. These receptors can be divided into two types of fibers: A-delta and C fibers. A-delta fibers are myelinated and primarily respond to significant pressure and heat. C-fibers are unmyelinated and respond to a variety of stimuli. Painful events often are experienced in wave: the initial burst of pain followed by a throbbing sensation. This is because of the

different myelination of the fibers; A-delta fibers' signal reaches the brain first.

Like other nerves, there is a minimum level of intensity before a signal is fired. The level at which this happens is called the pain threshold and varies significantly both from person to person and in the individual over time (Walton, MacDermid, Nielson, Teasell, Reese, & Levesque, 2011). What causes pain for one person may, without any psychological influences or pain management, not be stimulating enough for another person to report the sensation of pain. In fact, there is a variation of activity between people in the medial prefrontal cortex, thalamus, and midcingulate cortex that predicts how severe people will report pain and how much of a stimulus is required for it to become painful (Vogt, 2005). However, once the action potential of the nerve fiber is reached, how pain is labelled is fairly universal.

It is adaptive to eliminate the source of pain, which is one possible explanation for a person's decreased pain threshold, or increased pain sensitivity, when they are already in pain (Wolfe, Kluender, & Levi, 2006). Once some form of tissue damage has occurred, the area can become more sensitive than before, also known as hyperalgesia. This is what is known as inflammatory pain and goes away naturally with the resolution of the cause of pain. After experiencing pain, some sensory fibers that do not typically perceive pain now do. Allodynia, which is the name for this process of heightened sensitivity, shows how sensitive the body is to the presence of pain. Of course, for the person in pain, allodynia is less than ideal. Sometimes allodynia can also lead to chronic, maladaptive pain. However, in

general, allodynia allows for the survival of the individual, because they receive such strong and quick feedback about what stimuli to avoid.

In patients with long-term or chronic pain, there are changes in the brain that reflect this process (May, 2008). These patients have a larger cingulate cortex, orbitofrontal cortex, and the dorsal pons, all of which are areas involved in the experience and expectation of pain. It is not certain whether this is a cause or effect of pain. May (2008) suspects that slightly larger than average brain areas lead to a predisposition for pain which is compounded with chronic exposure to pain. The researcher also suggests that these changes happen in all chronic pain patients; thus the signature. In other words, while some people are more likely to be chronic pain patients, with enough input these changes can happen to anyone. It is hypothesized that proper treatment of the pain will reverse these changes.

The sensation of pain is individualized and, outside of trauma or disease, consistent across the lifespan (Gibson & Helme, 2001). However, in practice people have various abilities to cope with, anticipate, and tolerate pain. These abilities change significantly over the lifespan, varying greatly both between individuals, contexts, and over time. Sensation of pain, therefore, is only a small piece of the puzzle to understanding how pain is experienced. Pain is not an objective sensation, though this objective process is part of the experience.

Pain Perception

However, pain is also an extremely subjective experience. There are clear psychological influences that control a person's perception of pain. Expectation is one clear influence, as people who are told that a procedure will be painful will generally find it to be so (Beck, Towsley, Berry, Lindau, Field, & Jensen, 2010). Culturally, what is considered to be painful and what appropriate expression of pain is varies significantly across different groups; there also is a gender difference, though there is still heated debate as to how much of this difference is biological and how much is due to gender roles (Paller, Campbell, Edwards, & Dobs, 2009). Essentially, however, there is a completely subjective aspect of what is considered painful to the individual. It merits emphasis that this is real, not a dramatization of symptoms. Some people truly perceive pain more severely than others.

Analgesia

Because it is not advantageous to continuously feel pain, the body has biological processes in place to keep pain localized and temporary. As stated earlier, this does not universally happen, and the exact reasons of what stimulates the localization of pain and what causes inflammation is somewhat unclear. One theory is that the person only experiences analgesia after realizing that

their pain is escapable and the process of stimulation reduces likelihood of the pain happening again (Carlson, 2001). In general, analgesic effects are caused by endogenous opiates. Endogenous opiates are chemicals that block the release or uptake of neurotransmitters, which are necessary to continue the signaling of pain to the brain (Wolfe, Kluender, & Levi, 2006).

Gate Control Theory. Gate control theory is a very prevalent theory about pain sensation. According to this theory, pain sensations can also be inhibited through a feedback loop in the substantia gelatinosa of the dorsal horn of the spinal cord. Neurons in the substantia gelatinosa receive impulses from the brain that then signals the excitation of nerves that send impulses from the nociceptors to the brain. Essentially, pain sensation occurs in two locations: the spinal cord and the brain. When pain sensation occurs, inhibitory signals are sent to localize the pain and increase the person's likelihood of being able to respond. For example, if one's hand is hurting, it is advantageous to focus on this and be less mindful of stomach pain because pain in the arm is more likely to lead to immediate harm and should be prioritized.

There are two methods through which a person can take advantage of gate control theory. The less pleasant approach is introducing a secondary painful stimulus. For example, the pain from electrically stimulating a tooth is reduced by injuring the hand (Motohashi & Umino, 2001). What is likely occurring is that the ascending impulse from the secondary stimulus leads to the inhibitory feedback, which inhibits the sensation of the tooth as well. A more pleasant approach is rubbing or pressing against an area near the painful area. For example, rubbing next to a mosquito bite somewhat relieves the itch.

Interventional Analgesia.

It is possible to use psychological and other non-pharmacological interventions to maximize this process. There are a number of techniques, including hypnosis, relaxation, and attention shift that mediate the perception of pain (Nuesch, Hauser, Bernardy, Barth, & Juni, 2013). In addition, activities that increase dopamine levels also decrease the perception of pain. Another classic example is the under the table advice to patients complaining of pain to masturbate, as reaching orgasm triggers analgesic mechanisms and reduces pain (Chun, 2010). In women, masturbation specifically reduces sensitivity to painful stimuli, but not to neutral stimuli (Whipple & Komisaruk, 1988). The exact neurological processes are not well-studied in humans; however, in rats, stimulation of sex organs increases neuronal activity in the periaqueductal gray matter and decreases the responses of the thalamus (Carlson, 2001). In short, sexual stimulation promotes the same

responses as relaxation. Eating also helps; not only does eating increase the efficacy of some pain medications but also decreases pain alone (Bell, Borzan, Kalso, & Simonnet, 2012). In general, it appears that fulfilling biological needs decreases pain (Carlson, 2001).

Aside from psychological and non-pharmacological interventions, there are medical interventions which can be applied to relieve pain as well. There are a variety of medications available that relieve pain. Some medications are chemically similar to endogenous opiates that are naturally produced by the body (e.g., morphine and codeine), thus work the same and have similar effects (Wolfe, Kluender, & Levi, 2006). Other medications, such as acetaminophen and ibuprofen, inhibit neurotransmitters from initially firing, thus alleviating pain at its source. The difference in where the medication targets explains differences in the experience of taking the medication. Taking medications similar to acetaminophen and ibuprofen lead to reports that the pain has gone away. In contrast, people who have taken morphine report that they still feel pain but do not care about it or register it as being painful (Kawamata et al., 1996).

There are a number of factors that also make the perception of pain worse. For example, lack of sleep worsens pain levels, both because the body is less able to adapt to the stimuli and is sensitive to harmful stimuli and because the person is less able to distract themselves (Smith, Edwards, & McCann, 2007). For similar reasons, other forms of physical deprivation (e.g., hunger, thirst) also worsen pain. Anxiety worsens both pain tolerance and the pain threshold (Dersh, Polatin, & Gatchel, 2002). Not only does anxiety make the person less able to cope with pain, their body is more attuned to pain sensation. Overuse of medication also can make pain worse (Yates et al., 2006). This is partly because the person experiences withdrawal, but also because medication interferes with the body's natural inhibitory response to control pain.

Effects of Belief

Pharmacological Interventions

Drugs have an effect on people no matter what, even if the effect is not as intended. However, the effect of the drug can be impacted by one's belief of the drug's efficacy. Overall, people who believe their medication or other form of treatment will work have better outcomes than those who are unsure of whether the medication works (Reavley & Jorm, 2011). Specifically, in pain relief, the belief that medication will significantly reduce pain levels means that it is likely to do so. Even in the course of minutes, altering a person's belief of the drug's efficacy has a significant effect on reported pain levels.

Bingel et al. (2011) showed the strong effect of belief on pain relief. Participants were continuously

exposed to a hot patch that induces pain while being connected to an IV, which participants were told would administer pain relievers. Initially, when the medication started and the participant knew this, the average pain level reported the pain was a 66 (pain was assessed on a scale from 0-100; higher scores indicate more pain). To prevent the participants from associating being asked about their pain level as an indication that their pain level was supposed to change, participants were consistently asked about their pain level without any change in the drug given. After a short period, the participants were given medication without them being aware the flow had started; their reported pain level went down to 55. Clearly, medication has an effect regardless of knowledge or belief of its efficacy.

However, what is most significant is what happened after the researchers informed the participants that the medication had started (Bingel et al., 2011). Their reported pain level went down to 39. Additionally, when they were told they medication flow had stopped, the reported pain level went back up to 65, despite the fact that the medication was continuously administered. At the same time, the participants were scanned using fMRI. When participants had reason to believe their pain would decrease, activity in the brain related to pain perception was inhibited.

On the other hand, the negative expectation of pain has been found to increase activity within the hippocampus in the human brain (Bingel et al., 2011). The hippocampus is critical in connecting senses to emotions, showing that the brain is preparing itself to experience pain when the person is anticipating it. Other areas of the brain related to pain also showed increased stimulation, such as the thalamus and midcingulate cortex. In contrast, when the person expected pain to decrease because of the medication, excitation of the endogenous pain modulatory system was seen.

When the person believed their pain would be relieved, increased activation of the dorsolateral prefrontal cortex and the rostral section of the anterior cingulate cortex is seen (Bingel et al., 2011). Activation of the anterior cingulate cortex in general is associated with perceiving pain, but activation of the rostral section is specifically associated with cognitive processes of managing the pain. The dorsolateral prefrontal cortex is responsible for mediation in social situations and decision making. Its exact role in pain mediation is unclear, but one proposed model is that the dorsolateral prefrontal cortex simultaneously controls the expression of pain and controls the pathways between areas of the brain (Lorenz, Minoshima, & Casey, 2003). In other words, though the pain is still somewhat perceived, the brain is better prepared to control painful stimuli.

After the participants were told that the medication had stopped, their reported pain increased back to 65, despite the fact that the medication had continued

(Bingel et al., 2001). This serves to emphasize the effect of the belief that the pain is being treated has on the individual. The researchers use this to emphasize why the practice of doctors telling patients how long pain medication is supposed to work is detrimental. Even if effects may be continuing, or even if the pain is less severe, the individual will likely experience severe pain at the time of “discontinuation”, because they expect it.

Nonpharmacological Effects

Believing one's pain will go away has a powerful effect on the perception of pain. The placebo effect is a powerful and well-known phenomenon that is controlled for in quality drug trials. When a placebo is taken, the same areas of the brain that are stimulated when taking actual medication (Tracey, 2010). These effects are nullified when the person is given an opiate receptor-blocker, such as naloxone (Levine, Gordon, & Fields, 1978). The placebo effect is psychologically based, but has very real physiological changes that lead to changes in perception.

However, tricking the person is not the only approach to giving someone a nonpharmacologically based intervention. For a long time, the efficacy of acupuncture was assumed to be primarily related to the placebo effect and mitigated by belief; however, acupuncture has been shown to decrease sensitivity to pain in animals, where belief in efficacy is presumably not an issue (Carlson, 2001). In fact, acupuncture results in brain activity that is comparable to that of opioid interventions, more so than inert placebos. In fact, acupuncture is compared to people's natural attempts to use gate theory to their advantage to reduce pain (i.e. pinching/stimulating an area near the painful area to lessen sensitivity). Even though acupuncture is more effective with belief, just like medication, belief in its efficacy is not required for the benefits to be experienced.

Hypnosis is interesting because the biological mechanism behind it is somewhat ambiguous. When naloxone is given to people before undergoing acupuncture, it's effect is eliminated, showing it to be a procedure that works through the release of endogenous opioids (Mayer, Price, Rafii, & Barber, 1976). However, when clients are given naloxone before hypnosis, they still report pain relief. Therefore, the process of hypnosis is different than other interventions. Instead, it is hypothesized that hypnosis prevents the brain from readying itself for pain through relaxation and attention diversion (Bushnell, Ceko, & Low, 2013).

Conclusion

Pain is a complicated process that can only be fully conceptualized by understanding both the physiological and psychological processes that influence sensation and perception. For obvious reasons, pain relief is a

topic that is intensely researched by both the medical and psychological communities. Unfortunately, it is not until extraordinarily recently that research has focused on the relationship between these two schools in analgesic processes, which limits our ability to connect what we know is happening neurologically with what is happening psychologically. Future research should focus on bridging this gap. At the moment, however, it is clear that the process toward pain relief must be two-pronged. Not only must medical professionals take care to help their patients believe that their treatments will be effective, they should incorporate nonpharmacological approaches to maximize the benefit.

Research also should be expanded to note whether changes in gray matter are a cause of pain or an effect. Additionally, more research needs to occur to determine what the risk factors are for chronic pain. To relate, research needs to address what reduces pain, both acute and chronic, both with and without medication, and why it is effective. Understanding this opens the possibility of more treatments and an increased ability to give individualized interventions. The more knowledge available, the more applications become available.

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The Experience of Running: A Mixed Methods Approach

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Exercise has been demonstrated to be effective in the use of treating various mental and physical illnesses. However, experts still do not fully understand how the mind and body connect and why exercise has such an impact on the brain. Therefore, the following study used a mixed methods approach to understand how a deaf female college student experienced a short, intense run in order to generate hypotheses for future research on how exercise impacts the mind. Though the quantitative use of the Beck Anxiety Inventory (BAI) was found to be invalid due to the participants' low blood sugar after the run, the following themes were found to be significant using a qualitative analysis of the participants' responses: social experience, distraction from running, running as distraction, mind wandering, energy release and motivation. Implications for our theoretical understanding and for future research are discussed.

Keywords: exercise, mind-body connection, qualitative research, physical activity, anxiety, mental disorders, Beck Anxiety Inventory

Current estimates state that one in four adults suffer from a clinical level of mental illness each year (Kessler, Chiu, Demler, & Walters, 2005). It is well documented that exercise has numerous benefits for mental health and overall wellbeing (Vina, Sanchis-Gomar, Martinez-Bello, & Gomes-Cabera, 2012). However, specific exercises (e.g., running) and how they contribute to the reduction of specific mental illness symptoms have remained mostly unstudied. The current study attempted to bridge the gap between the known benefits of exercise and how people experience these benefits. To date the author is unaware of any study that has focused specifically on how a person experiences exercise. Specifically, the study focused on how a person describes the experience of running immediately after a short, intense run. This study's purpose is to explore this experience in hopes of generating future hypotheses surrounding the following topics: who to prescribe exercise for, how much exercise is beneficial for that person and their specific problem, what type of exercise is best suited for that person with that particular problem and to eventually predict a more specific prognosis for those using exercise as part of their treatment plan. To this end, the research question for this study is as follows: how does a college student experience a twenty minute run on a treadmill at 70% maximum heart rate (moderate-heavy exertion)?

For centuries, physicians and other health professionals have known that exercise has many

benefits which include decreased risk of heart disease, stroke, hypertension, diabetes, and cancer as well as increased stamina, energy, metabolic function, and control of body weight (Fentem, 1994). Reviews of hundreds of international research studies have also demonstrated that exercise has numerous benefits on mental health as well, particularly for depression and anxiety (DeBoer et al., 2012; Wolff et al., 2011). Most of the research on the benefits thus far has been quantitative and have been conducted by medical researchers. However, there have been a few recent qualitative studies published on the meaning of running.

One such study was a narrative analysis conducted by Carless (2008). Carless (2008) decided to use life history data to conduct an analysis of narrative to understand the story of a patient with schizophrenia named Ben. Using the researcher's own experience of running and being diagnosed with schizophrenia, Carless (2008) used content analysis to create a first person narrative of Ben's life, since Ben was also diagnosed with schizophrenia. Carless (2008) analyzed the contents of the narratives for structure, themes and identity and Carless concluded that running allowed Ben to find his own identity again outside of mental illness and how that it him a sense of purpose in life, despite suffering from a debilitating and severe mental illness (Carless, 2008). This included in-depth interviews with Ben, analysis of medical records, observations of Ben

over the course of eighteen months and interviews with the mental health professionals working with Ben. The author also included in-depth information about Ben and the specific events that had contributed to his life history. However, the author did not include information regarding member checks, peer debriefing, progressive subjectivity and disconfirming case analysis were not included. These factors have been suggested to be essential for demonstrating the strength of a qualitative study (Marshall & Rossman, 2011). The author seemed to be fair and authentic in his understanding of the case, but without more information about the other areas of rigor, the study cannot be found to be credible overall. The study can, though, help one understand how a person suffering from severe mental illness believes that running contributed to a sense of identity and purpose.

Using a phenomenological approach, Rupprecht and Matkin (2012) also tried to capture the meaning of running. Like most phenomenological researchers, the main question was concerning the nature of the experience (Rupprecht & Matkin, 2012). Their focus, though, was on six women that were training for marathons. This study included detailed information about how most criteria for a high quality qualitative research was followed, contributing to the rigor of the overall qualitative design. At the end of the study, the researchers found that struggle, emotion, pride, intimate connections, preparation and inspiration/transformation were the major themes that were described by the runners (Rupprecht & Matkin, 2012). Regarding the transformative theme, one runner stated that she believed running had transformed her into a more patient and self-controlled person (Rupprecht & Matkin, 2012). Another runner suggested that running had given her encouragement to accomplish other goals in her life (Rupprecht & Matkin, 2012). These runners are not alone in their belief that running can be a transformative experience. Research has demonstrated that running can transform a person's mood and even significantly lessen mental illness symptoms (DeBoer et al., 2012).

Despite the quantitative and qualitative research available on running, none has focused on the experience of exercise. For this reason, we do not know why exercise significantly reduces mental illness symptoms or the mechanism of change that contributes to this change in psychological and physiological states. Therefore, we cannot know how exercise is working in the individual and cannot know specifically how to prescribe it's use in therapy. Regardless of it's potential for lessening mental illness symptoms, exercise and how it works within a person is not understood enough for the clinician to be able to tap into it's potential. It is for these reasons that the current study began to explore the experience of exercise, in order to better understand the underlying mechanism that is contributing to physiological and psychological change.

Of the four research paradigms, the writer adheres to pragmatism. Therefore, as suggested of pragmatists (Mertens, 2010) the writer believes that practicality should drive and inform research. It is this philosophy that drives the design of the axiology, ontology, epistemology, and methodology for the current study. Qualitative methods and quantitative methods were also used in the present study. The qualitative methods focused on the experience of the individual and allowed the participant to educate the researcher on what they believe to be happening phenomenologically before and after the exercise intervention. Quantitative methods were used to quantify the anxiety and stress symptoms that the participant is experiencing. The combination of quantitative and qualitative methods contributed to the current study's ability to examine the experience of running from a holistic perspective.

As previously stated, it is important that the reader understand the philosophies and experiences of the researcher that influence the study. Therefore, it should be understood that I am an endurance runner and have been using exercise, specifically running, to manage my own anxiety and daily stress for over five years. In my own experience, I have found running to be more effective at managing anxiety and stress than any other intervention. However, despite my experience with the benefits of running, I find myself still asking questions about how a run manages to calm my own nerves and slow down my thoughts. It is my hope that my own experience helped me to understand the explanation of someone else who is describing his or her own exercise experience.

Method

Participant. The following information about the participant is being included in order to support replication. It should be noted, however, that some identifying information has been changed in order to maintain confidentiality and to protect the participant's identity. The participant was recruited through the use of fliers at a local college. The recruitment flyer was designed to attract those that love running in order to recruit an "average" runner. In addition, the participant for this study was selected based on the method of sampling typical cases. The participant was considered a typical runner with a normal mental health history. Specifically, the participant did not admit during the initial interview of running more than thirty miles per week or less than one mile. If she had, she will not be included in the study because that amount of mileage is much different than the average runner. In addition, the participant did not state that she has a current diagnosis of a major mental illness. If she had listed a current mental health diagnosis, she would have been excluded from the study. The purpose of this study was to explore the experience of running in a healthy individual. Therefore, including extreme amount of miles run

during the average week or a current diagnosis of mental illness would not represent the average population that the study is focused on.

The participant was a deaf female, in generally good health and in her late twenties. Though currently living in the US, she stated that she grew up in the United Kingdom. She did not report any injuries preventing her from running or exercising at the time of the initial interview. Typically, she stated that she exercised at least three times a week and alternated between swimming and running. She also reported having a history of athletic competition. This included running on the track team in high school and competing on a University swim team for two years during her time in college.

Procedure. Following recruitment, the participant was instructed to contact the researcher to set up a time for an initial interview. During the initial interview, which lasted approximately thirty minutes, the participant was given the opportunity to read and sign the informed consent form. The participant was then asked interview questions about running experience, background, and general health status to ensure that the participant was healthy enough for the run. Immediately following the first interview, the participant was given the Beck Anxiety Inventory (BAI) to measure her current feelings of anxiety. She was also asked her current emotional state. Before leaving the initial interview the participant was asked to keep a journal to include her experiences of exercise during the subsequent seven days. She was specifically asked to focus on feelings of anxiety and to journal even on days, which she did not exercise in order to compare her experiences more effectively. These journal responses were emailed to the primary researcher after the completion of the journal seven days later.

After the completion of the first interview the participant and researcher scheduled to meet for a follow-up interview two days later. The participant was instructed to go on her regularly scheduled run immediately before the scheduled meeting. However, due to a last minute schedule change the meeting took place one day later than expected. As instructed, the participant had just finished a run of approximately two miles on the outdoor track of a local university. It should be noted that the participant had also participated in a Zumba class prior to her run and the scheduled interview, resulting in a longer exercise exposure than originally intended.

During the second interview, the participant was asked questions specifically related to her recent run and how she experienced the exercise both mentally and physically (See Appendix A). Following the second interview, the participant was administered the BAI again in order to measure her post-run anxiety levels.

Both interviews were conducted in American Sign Language (ASL), video recorded with permission, and transcribed verbatim. The transcript was then translated into written English and subsequently typed up by an individual proficient in ASL. Once the interview was transcribed it was sent to the participant via email so that she could make any changes necessary. The transcript was then sent back to the primary researcher and the changes were incorporated into the final transcript before it was coded and analyzed. The participant was then compensated for her time with a ten-dollar gift card to Starbucks.

Data analysis. In order to follow the standard of triangulation suggested by Marshall and Rossman (2011), the primary researcher performed an observation. The observation was conducted in the middle of the day at the outdoor track of a local university. Several faculty, staff, and students had come to the track to exercise (e.g., running and walking). The weather was mild and sunny. The researcher sat away from the track, but still in view of those exercising and recorded observations via typing on a laptop. The data recorded included information about how long each person ran, how they entertained themselves while running or walking, whether they chose to exercise in a group or alone, and affect before and after they finished exercising.

Regarding the quantitative data, the scores from the BAI before the run during the initial interview were compared to those from the measure after the run during the second interview. Since the pilot study only contained one participant, no statistical analysis was used.

To analyze the data the primary researcher read through the analysis holistically without judgment. Later, the data from the member and peer debriefer-checked interview transcripts, document review and observation were analyzed using HyperResearch to discriminate meaning units (See Appendix B). The significance of each meaning unit was then determined. Finally, psychological structures associated with these meaning units were investigated.

Results

Quantitative Data.

Much to the surprise of the researcher, there was a slight increase in scores on the BAI from before the run to after the run. However, after further questioning it was determined that the measure was invalid due to the fact that the participant had not eaten prior to the second administration and was reporting symptoms of low blood sugar rather than that of higher anxiety.

Qualitative Data.

After analyzing the data, several themes emerged. Each, along with their supporting data is discussed in the following sections. They are discussed according to how meaningful they seemed to be in the participant's responses.

Running as distraction. At times, the participant reported using running as a distraction from everyday activities and routines. In her words, running gave her a "break to focus on other things with other people and I liked that." In addition, running seemed to help clear her mind. She reported that "Sometimes I like my body moving when I'm thinking. It helps me to think." For her, running was important because it put her "outside of [the] situation." In addition, though she could not explain why, she felt as though we could take a break from her everyday routine to exercise and then have a greater ability to pay attention to other things later.

For this participant, running gave her the opportunity to let her "mind wander." She described the experience best when she said, "When you're running your mind just kind of wanders off and doesn't have any real order to it but your body just keeps moving." For her, it was though her mind and body moving at the same time, without any logical pattern to her thoughts was beneficial. An important part of the experience of running was having the time to let her mind wander off to things that she would normally not have the time to think about. As a matter of fact, she even admitted that she "[goes to] exercise to think." During the second interview, she described having thought about several things during her recent run including her plan for the day, her family, and "a lot of different things."

Distraction from running. Running is a strenuous activity for most people, including those that exercise on a regular basis. Findings from this study suggest that runners sometimes distract themselves while running in order to forget how hard they are currently working to continue the run. The participant in this study, for example, spoke often of "mental games" that she would play with herself in order to continue on. According to the participant, she would "often look at my shadow and look at my technique." This was done in order to entertain herself as she ran along and to make herself forget what she was doing at the moment.

Several times during the interview, the participant described running as a social experience. At one point, she admitted that she "preferred to run with other people" and that she enjoyed "chatting while [they] run." In her words, "Chatting kind of takes your mind off of running and makes you keep going and forget how far or how long you've been running, which is good." The participant seemed to use running as a time to catch up with friends and to distract herself from her current

experience, namely running. This finding was further supported by evidence from the field observation. Several people decided to exercise with others and chat while walking or running as opposed to exercising alone. Furthermore, even if the two or more people were not chatting they sometimes chose to run or walk beside each other instead of alone.

Energy release. During the initial interview, the participant described a feeling of restlessness or "jumpiness" that she would feel from time to time before exercise. She then explained that when the feeling would hit, she would go run or swim. When asked to describe how running seemed to resolve this feeling of restlessness, she explained it using swimming as an analogy: "Sometimes before a swim my mind is just going 100 mph and when I'm swimming I can just toss out all of those thoughts and focus on something else. Or I can just let my mind wander. I can just toss whatever that issue was out. I think that applies to running, too." After this "tossing out" of thoughts and her feeling "tired" afterward she described a reduction in her feelings of restlessness. Later, she described the experience of restlessness as, "the energy is still in your body". However she believed that exercise, specifically running, helped to "let that energy go." The experience of exercise, to her, was one of releasing this feeling of restlessness when it hit.

This finding was further supported by a review of the participant's journal responses. The participant described an experience of having pent up emotional energy from the day before. She believed that the experience of exercise, namely swimming, "made me go more loose and made me able to cry a bit." The next day, she reported that she "felt sooo much better" and that she thought "that was because [she] went swimming the night before." For this participant, exercise seemed to help her release emotional energy and express her feelings.

Motivation. Finally, the theme of motivation, both internal and external, occurred frequently during the interview, observation, and document review. During the interview, the participant seemed to perform well when there was external motivation, specifically from a coach or peer to compete with or to encourage her. For this participant, having a coach push her limits was an important motivator even her internal motivation to continue on was low. Later, she stated that when she joined the swim team she "looked at other students and realized that [she] wanted to be on their level" and therefore decided to swim harder in order to be able to "keep up" with them. In sum, her sources of external motivation seemed to derive mostly from peers and coaches.

Her reported sources of internal motivation, on the other hand, were various. She explained that she had begun running again three weeks prior to the interview because “it was warm outside.” Conversely, she reported that when it rained, like it did the week before the interview she “looked outside and saw that it was raining and [she] just thought, ‘Maybe not...’” Therefore, weather seemed to be an influential factor in her levels of internal motivation. In addition, she reported that the following factors were motivators for her: competition with herself, using self-talk with phrases such as, “just one more lap,” achieving of goals set for oneself, losing weight, staying in shape, pleasure of being outside, and staying on a regimented exercise schedule.

In general, the participant reported that she typically performed better when there were external motivators, such as a coach telling her to speed up, because “when you’re not on the team and you don’t have anyone else around then it has to come from the inside. The expectations are a little bit lower and a bit more relaxed expectations for myself.” However, she stated that she believed both internal and external motivation are important in order to perform well and to fully enjoy the experience of running.

Discussion

In accordance with the themes of running as a social experience and a distraction from everyday life, exercise has been theorized as a time-out activity that is beneficial for mental health because it distracts the individual from their daily stressors. Bakhre and Morgan (1978) first introduced the distraction hypothesis to explain the reduction in mental health symptoms that were being found after a client exercised. The researchers compared running to a meditation and control group and found that each activity led to a reduction in state anxiety, or a temporary physiological and psychological experience of anxiety. They concluded that this could have been due to the person taking a break from daily activities. This hypothesis may explain why the participant found running to be such a relaxing and enjoyable activity. Furthermore, Rupprecht & Matkin (2012) also found that the running was an experience that involved building intimate connections and that being social was part of what made running a meaningful experience. This is important treatment consideration for clients that may benefit from the physiological effects of exercise, as well as those who suffer from internalizing disorders and struggle with letting go of their concerns.

The themes of experiencing distractions from running and one’s mind wandering may also be explained by a psychological construct. Automatic processes are processes that become automatic and do not require active control or attention by the person. For

example, for many people who take the same route home from work, driving home may become an automatic process that does not require one’s effortful attention. Based on the findings from this study, it may be suggested that for people that run on a regular basis, running may become an automatic process that allows the mind to wander to be distracted by things other than the experience of running itself. The participant described a similar experience during the interview when she stated, “It just kind of comes automatically” and that “it’s like you’re thinking about [running] in the back of your head but you can focus on something else. Like sometimes you’re focused on technique but other times it’s just in the back of your head.” As previously mentioned, the psychological construct of automatic processes may explain how this occurs during running. It may also explain why, during the observation, many runners were listening to music and seemed to be more focused on their music than on running itself.

Running has been shown to be effective for the treatment of anxiety disorders (Leith, 2010). Though it is not thoroughly understood how the mind and body connect in order to release feelings of restlessness and stress, exercise has been shown to significantly reduce these feelings immediately following a workout. These findings support the participant’s claim that exercise helped to resolve these issues for her. For clients that suffer from feelings of restlessness, these findings suggest that exercise may lead to a sort of cathartic experience. Future research is needed on how this process works and how the mind and body connect in order to release this type of anxious energy.

Lastly, the psychological constructs of both internal and external motivation appear to explain how the participant experienced exercise. Internal motivation is motivation based on enjoyment of the activity or motivation that occurs within one’s self to behave in a certain way. External motivation originates from outside one’s self, such as praise or criticism by other people. As previously stated, both seemed to be influential in the way that the participant experienced running. At times, however, it seemed as though both were occurring simultaneously and in competition with one another.

Limitations

Due to the fact that this was a pilot study for future research, the current study was conducted with only one participant who has a longstanding history of participating in sports and demonstrates a high level of internal and external motivation to exercise. Therefore, the results of this study may only be transferable to those with a similar athletic history, gender, and background. In addition, the BAI was found to be invalid due to the fact that the test was found to be measuring symptoms associated with the participant’s temporarily low blood sugar levels. For this reason, the quantitative data from

this study is not reported. Finally, the second interview was conducted after the participant had run. However, the primary researcher was unable to observe the participant during this run in order to perceive how the participant appeared to be experiencing exercise, including affect which was another limitation of the current study.

Future Research

The results from the study suggested several future research questions, including: 1. What psychological processes lead to a reduction in anxiety immediately following exercise? 2. How does personality predict how much a person will benefit from exercise? 3. How does running influence a person's sense of a mind-body connection? 4. How much of the psychological changes that we observe as a result of exercise is due to physiological changes versus cognitive ones? 5. How does cardio exercise (ex: running) compare to non-aerobic exercise (ex: yoga) for the reduction of anxiety symptoms? 6. Which proposed theory (ex: distraction hypothesis, automatic cognition, mind-body connection theory, internal versus external motivation) contributes most to the changes that occur as a result of exercise (ex: reduction in anxiety)? 7. What is the difference between the experience of running for the average healthy person versus a person who is returning to running after an injury? Future research may also utilize an observation and semi-structured interview while a person exercises in order to fully understand the cognitions and emotions that occur when a person exercises. Due to the complications that were caused by the BAI, it is suggested that future research use the measure with caution and ensure that the participant is not hypoglycemic and has eaten regularly scheduled meals before taking the test. It is hoped that further research, using both quantitative and qualitative methodology will lead to a more holistic understanding of how a person experiences exercise.

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Appendix A

Interview Guide

First Interview

1. Preferred mode of communication (English vs. ASL)
2. Age
3. Do you currently have any physical injuries that keep you from running on a weekly basis?
4. Do you currently have any mental health diagnoses?
 - a. Are you currently receiving psychological help for these diagnoses?
5. How would you describe your general physical health condition?
6. Do you experience any pain when you run?
 - a. Where is the pain located?
 - b. How long has this pain been occurring?
 - c. What makes the pain worse?
 - d. How often, when running, does the pain occur?
 - e. Have you received treatment for this injury?
 - f. What home remedies have you tried in order to relieve the pain?
7. How many miles do you run on a weekly basis?
8. Where do you run the majority of your miles during the week?
9. How long have you been running?
10. Why did you decide to start running?
11. Tell me about any experiences you have with competitive running (Ex: running road or trail races, running track in high school, etc.)
 - a. Are you currently training for a race?
 - b. How long are the races you prefer (marathon VS 5K)?
12. How long are the races that you have run in the past?
13. When running indoors, how do you typically entertain yourself while running on the treadmill?
14. Tell me about what running means to you.
15. How many people do you usually run with?
16. Tell me about any running groups that you are a part of.
17. I'm curious about your reasons for starting to run on a weekly basis. Can you tell me a little more about that?
18. How are you currently feeling emotionally in the present moment?
19. How would you describe your stress level at the present moment?
20. How do you feel physically in the present moment?

Second Interview

1. Before the run, you said you were feeling _____ emotionally. Tell me about how you were feeling before the run compared to now.
2. What changes did you notice in your stress levels from before the run until now?
3. What were you thinking about during your run?
4. What changes did you notice in your thoughts from the beginning of the run until now?
5. How did the run feel physically?
6. What changes did you notice in your body from the beginning of the run until now?
7. Some people believe that running is a terrible experience and nothing good comes from it. How would you respond to that?
8. How would you describe the running experience?
9. Is there anything else that you want to tell me about your running experience?

Table 1.		
<i>Significant Statements, Meaning Units and Themes</i>		
Theme	Meaning Unit	Significant Statements
Motivation	Encouragement	"My coach would push me and you know afterwards I felt really good"
		"You know when we started I was thinking this is fun and then the last lap I was feeling rough but the other person was encouraging me so I kept going."
	Negative Self-Talk	"But when I running I was thinking, 'I just want this to be over'"
	Personal Enjoyment	"I wanted to go to practice and always looked forward to swimming"



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Cross Cultural Differences in Facial Recognition of Emotions: A Literature Review

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This paper reviews the cross-cultural differences in facial recognition of emotions. The controversy regarding universality of facial recognition of emotion is addressed. The paper also discusses potential differences in emotion recognition in deaf signers compared to normal hearing individuals. Future directions in research are also discussed related to recognition of facial expression of emotions across deaf cultures compared to that of the majority hearing culture.

Keywords: Facial recognition, deaf, emotions, sign language, cross-cultural differences

Literature Review

The scientific study of emotional expression has been pursued for more than two hundred years (Russell, Bachorowski, & Fernandez-Dols, 2003). Many scientific studies have investigated emotions and emotional expression (Elfebein & Ambady, 2003). Researchers have long debated whether facial expressions of emotion are universal (Ekman et al., 1987). One question that researchers have sought to answer is whether or not basic emotions are universal across cultures. Studies have found that emotions are culturally universal and are not a result of learning, but rather have a biological basis (Elfebein & Ambady, 2003; Ekman et al., 1987). Charles Darwin believed that the universal facial expressions of emotion are based in evolution (Ekman & Friesen, 1971). Darwin examined the work of Duchenne de Bologne, a French neurologist who concluded that the “smile of enjoyment could be distinguished from deliberately produced smiles by considering two facial muscles;” specifically, the zygomaticus major and the orbicularis oculi (Ekman, 1992, p. 36). Darwin and Tomkins reported that there are distinctive movements of the facial muscles for each of a number of the primary affect states and that these are universal throughout mankind (as cited in Ekman & Friesen, 1971).

Facial Recognition of Emotions

Research on emotion across different cultures has shown that many facial expressions are universal (Solomon, 2003). Research has shown that across cultures, the emotions of happiness, anger, sadness, and

disgust are universal; however, the emotion of fear has not been found to be universal amongst groups that are isolated from outside visual information. For example, there are the people in the South Fore of New Guinea who had not seen any mass media and had only seen a few outsiders.

While there is much research on the facial expression of emotions, there is still some controversy regarding the studies done on the recognition of facial expressions of emotions (Ekman, 1992). One such controversy concerns methodology. Some studies used photographs in which the facial expressions were deliberately produced rather than spontaneously produced. Recent studies have addressed the concern over deliberately produced facial expressions by utilizing voluntarily expressed emotions in exchange for deliberately produced ones (Ekman, 1992).

Another issue is whether or not facial expressions of emotion are socially-learned or culturally-variable (Ekman, 1992). Research by Ekman, Sorenson, and Friesen (1969) showed consistent evidence of agreement across more than one dozen Western and non-Western literate cultures on the labeling of facial expressions for enjoyment, anger, fear, sadness, disgust, and surprise (as cited in Ekman, 1992). Ekman and Friesen (1971) later replicated this study with a visually-isolated culture in West Irian, in order to rule out the possibility that facial expressions are learned from a shared mass media input (as cited in Ekman, 1992). Results of the study supported the notion that facial expressions are not learned from a shared mass media input.

Cross Cultural Differences

Ekman and Friesen (1987) conducted a study in which participants from ten different cultures were asked to judge the emotions depicted in photographs. These photographs were from three sources: posed emotions, spontaneous expressions, and photographs in which the models were instructed on which muscles to contract. Participants were asked to indicate whether or not multiple emotions were evident and the intensity of each emotion. Ekman and Friesen's 1987 study showed a high agreement across cultures when the emotion in the photograph was the most intense. Ekman and Friesen (1987) found no cultural differences when looking at the judgment of the absolute level of emotional intensity.

Masumoto (1989) examined the emotions of anger, disgust, fear, happiness, surprise, and sadness - all which had been found to be universally perceived. The study looked at the utility of stable and meaningful dimensions of cultural variability in the examination of emotion. Cultural variability referred to Hofstede's four dimensions of cultural variation: power distance, uncertainty avoidance, individualism, and masculinity. Masumoto (1989) analyzed previously conducted judgment studies of universal facial expressions using Hofstede's dimensions of cultural variation. Analyses were completed by looking at three different types of data: the percentage of each culture that correctly identified the emotional expression, the mean intensity level attributed to each of the expressions, and the amount of variability associated with the intensity rating of each expression. Results suggested that meaningful dimensions of cultural variability can be a potentially useful as theoretical and empirical constructs in future cross-cultural studies on emotions.

Differences between the Japanese and Western cultures in judging emotions.

A study conducted by Masuda et al. (2008) investigated whether or not Japanese individuals incorporate information from social context more than Westerners when judging the emotions from other people's facial expression. Masuda et al. (2008) indicated that the differences reflected variations in levels of attention. Results also found that Japanese participants looked at surrounding people in the photograph more than Westerners did.

Miyamoto, Uchida, and Elsworth (2010) expanded on the Masuda et al. (2008) research by investigating cultural similarities and differences in mixed emotions. Miyamoto et al. (2010) predicted that both Japanese and American participants would feel mixed emotions, but in different situations based on their culture. In the study by Miyamoto et al. (2010), results confirmed that both Americans and Japanese reported feeling mixed emotions, but in different kinds of situations that depended on their culture.

Dailey et al. (2010) conducted two studies on the effect of culture and learning on understanding facial expressions. The first experiment was with Japanese and American participants who were asked to interpret facial expressions of emotions. Results showed that Japanese participants were better able than Americans participants to identify facial expressions that were posed by Japanese people. The study also found that American participants were better able than Japanese participants to identify facial expressions when posed by Americans. Dailey et al. (2010) concluded that when interacting with others in a specific cultural content, people learn to recognize the specific facial expressions of that culture.

Accuracy in judging emotions.

According to Elfenbien and Ambady (2003), recent research on emotion found that people were generally more accurate in judging facial expression of emotions when they were expressed by people from their own culture (rather than other cultural groups). In addition, they discussed how researchers have developed theories regarding the influence of biology and culture on the communication of emotions.

One such theory is Ekman's Neurocultural Theory of emotion, which hypothesizes the "existence of universal facial affect program that provides a one-to-one map between the emotion a person feels and the facial expression the person displays" (Elfenbien & Ambady, 2003, p. 161). Thus, the facial affect program is the same for everyone in all cultures, and in turn, all individuals express emotion in the same way in non-social settings. However, in social settings, individuals may manage these emotions. This may neutralize or mask emotional displays that would otherwise be produced automatically. A dialectical theory was proposed by Tomkins and McCarter (1964), who articulated the metaphor that differences across cultures in emotional expression are like "dialects" of emotions (as cited in Elfenbien & Ambady, 2003).

Matsumoto and Ekman (2004) conducted four studies that examined the expression of contempt. In the first study, participants looked at 64 expressions one at a time and were asked to select one word from a list that describes the emotion portrayed in the expression (a fixed-choice task). Results showed that the labeling of contempt in fixed-choice judgment tasks did not occur because of a process of elimination (Matsumoto & Ekman, 2004). In the second experiment, participants paired the contempt expression with scenarios that brought forth the emotion of contempt. Participants also labeled using a free-response format the scenarios that brought forth the emotion of contempt. Results showed that the emotion contempt was associated with situations that elicit the emotion contempt; however, participants did not label the situations in an open-ended response.

For the third experiment, participants were shown the expressions used in the second experiment in the same order and were asked to label the emotions. Participants were more reliable in labeling the contempt expression in those situations. In the fourth experiment, the participants were asked to match the words contempt and disgust to the correct definitions. Afterwards, participants were asked to rank seven emotions in terms of how often expressed each and how often they heard or read about them. This study found that participants reported hearing and using the emotion of contempt less than the other emotions. The investigators concluded that the emotion of contempt has been found to be consistently associated with circumstances that would cause contempt. Therefore, the inability to label the contempt expression more likely reflects a difficulty with the concept of contempt, rather than stating a problem between the expression of contempt and the actual emotion.

Cross Cultural Similarities

Elfebein and Ambady (2002) conducted a meta-analysis to examine emotion recognition both within and across cultures. Results of the study indicated that emotions were universally recognized at more than chance levels and that accuracy was high when these emotions were from individuals of the same culture (Elfebein & Ambady, 2002). This implied an in-group advantage when looking at the same national, regional, and ethnic groups. However, when looking at groups of people that have greater exposure to other cultures, a smaller advantage was found.

Examining with a different cultural group, Hejmadi, Davidson, and Rozin (2000) conducted an experiment on Hindu Indian emotion expressions. Participants were American and Indian college students and they were shown a videotape in which "classic Hindu" emotions were expressed. The emotions reported to be shown included anger, disgust, humor, heroism, peace, love, sadness, shame, embarrassment, and wonder. These Hindu expressions included both the face and the body and each emotion was portrayed with three different expressions. Participants were shown forty-five expressions to label from either fixed or free responses. Neutral expressions were also shown to the participants. Results indicated that both Americans and Indians were able to accurately identify emotions using both fixed and free responses.

Scherer and Wallbott (1994) examined differential emotion patterning across cultures. Thirty-seven countries were included, using cross-cultural survey data. The study found significant main effects and a strong effect size for the response difference across seven emotions: joy, fear, sadness, anger, disgust, shame, and guilt. This study provided further evidence

that a high degree of universality exists for differential emotion patterning.

A study by Matsumoto and Willingham (2009) looked at the spontaneous expressions by congenitally and non-congenitally blind athletes participating in the 2004 Paralympic Games, in order to better understand the emergence of facial expressions of emotions. The expression of athletes with normal vision were also studied. Results suggested that in terms of emotions, people spontaneously make facial expressions regardless of what they learned observing others.

Facial Recognition in Signers

Few research studies have been done on the perception of facial expressions of emotion among people who use sign language. "Only a few detailed analyses of natural productions of dynamic emotional and grammatical facial expressions in American Sign Language (ASL) have been conducted" (Grossman & Kegl, 2006, p. 24). In ASL, the face is used to express grammar and emphasis, in addition to being used when expressing emotions (Grossman & Kegl, 2006). Goldstein and Feldman (1996) investigated the relationship between sign language knowledge and the ability to decode facial expressions of emotions. They conducted a study with hearing college students, half of which had some previous exposure to sign language. The hearing participants viewed silent videotapes of persons experiencing spontaneous emotional reactions. Results indicated that the students with ASL exposure were generally better than non-signers in identifying facial expressions of emotions. One possible explanation is that sign language knowledge helps a person to better understand the nature of nonverbal communication.

Comparatively, Goldstein, Sexton, and Feldman (2000) conducted a study to investigate if there were differences in encoding facial expressions in individuals with ASL knowledge, when compared to non-signers. Participants included hearing non-signers and hearing signers who were asked to pose for the seven universal facial expressions while being videotaped. A separate group of untrained participants were asked to try to identify these emotions. Participants with sign language knowledge were able to identify the seven emotions more accurately than non-signers.

In contrast to Goldstein et al. (2000), Grossman and Kegl (2006) conducted a study on how "deaf signers and hearing non-signers recognize and categorize a variety of communicative facial expressions in ASL using dynamic stimuli rather than static pictures" (p. 23). Deaf and hearing participants viewed images and were asked to categorize dynamic facial expressions. Results showed that hearing participants were more accurate in their categorizations. Although this study was not consistent with previous research, it is important to take

into account that the researchers did not use Ekman's universal emotions. Also, while ASL facial expressions were used for each emotion, the task only included neutral, angry, surprise, quizzical, y/n question, and wh-question expressions. Therefore, the results from the Grossman and Kegl (2006) study should be interpreted with caution and should not be used to generalize to entire deaf population.

Conclusion and Future Directions

Emotions are an important aspect of human life and play a key role in nonverbal modes of communication. While some debate exists over universality of facial expressions of emotions as well as some cross-cultural differences, for the most part, studies show that facial recognition of emotions are universal and consistent across cultures. When comparing deaf signers to that of non-signing hearing individuals, deaf individuals were able to more accurately identify presented emotions. This suggest unique advantage in deaf signers in facial encoding of emotions which is likely attributed to the nonverbal component of sign languages.

Despite these findings, more research is needed on universality of facial recognition of emotions in deaf signers. More specifically, future research should focus on universality across different deaf cultures on a global level. Potential findings would have important implications in better understanding emotion recognition.

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Yasmeen Alhasawi, M.A., received her Bachelor's degree in Psychology at Purdue University and her Master's degree in Psychology with a specialization in Clinical Psychology at Gallaudet University. She completed a research fellowship in molecular genetics and otolaryngology at the Harvard Medical School. Yasmeen was a visiting research scholar at the Neuroethics Studies Program at the Center for Clinical Bioethics at Georgetown University. Her research interests are in audio-visual integration and long-term auditory memory in late-deafened adults and neuroethical considerations of cochlear implantation. Yasmeen has presented her research at conventions for the American Psychological Sciences, the Association of Late Deafened Americans, and International Neuroethics Society. She is presently writing a chapter in an undergraduate textbook in psychology. Yasmeen currently serves as an international ambassador to Psi Chi National Honor Society of Psychology.

Editors-in-Chief



Joanna Dziura, M.A., is a fourth year Clinical Psychology PhD student at Gallaudet University. Previously, Joanna attended Wroclaw University in Poland, where she obtained a Master of Arts degree in Psychology. Right after graduation, Joanna joined the Polish Army and served for 8 years as a uniformed military psychologist in engineering and armor units. During that time, she was deployed multiple times to Iraq and Afghanistan, where she provided psychological help to soldiers from 18 different nations and multinational civilian contractors. Joanna also served as the Chief of Humanitarian Assistance Coordination Center, where she was assessing the critical needs of local Iraqi institutions and organized financial and material humanitarian help for hospitals, schools, and Non-governmental organizations (NGO). During the time she spent in Iraq and Afghanistan and through work with the civilian population in these countries, Joanna had a chance to observe first-hand the impact that disability had on people's lives. This experience resulted in a strong desire to understand this topic better and specialize in the psychology of health and illness. Currently, her main area of research interest is the late acquisition of visible and hidden physical disabilities in civilian and military populations.

Joanna wrote chapters to three books dedicated to military psychology and presented multiple times at professional conferences internationally and in the US delivering lectures on pre-deployment psychological preparation of military personnel, PTSD, deployment stress, and issues related to the late acquisition of disability. Joanna also deeply believes that the road to being a great professional starts early in a student's education and requires being actively involved in students' affairs.



Gregory Farber, B.S., is a third year deaf Clinical Psychology Pre-Doctoral student at Gallaudet University. Previously, Greg attended Rochester Institute of Technology where he obtained a Bachelor of Science degree in Psychology. His own experiences of deafness and his observation of frustrations and struggles of his deaf peers led him to become fascinated with impact of life experiences on one's development and with psychology in general. Greg knew there is no better place to pursue his dream than Gallaudet University, the cultural mecca for the Deaf community. He remains true to his first psychological interest and his research interests are still closely related with areas of D/deafness, development of D/deaf individuals, and the Deaf community. In the

future, Greg hopes to become a Clinical Psychologist serving Deaf community and a professor of psychology. He also hopes to specialize in Developmental Neuropsychology. While in Gallaudet, Greg noticed that the majority of studies and research that his fellow students conduct remain unknown. This observation brought him to the idea of reactivation of the Gallaudet Chronicles of Psychology, a journal where Gallaudet students could publish their findings. As a co-Editor, Greg has two goals - promoting psychological research related to disability and deafness and helping his fellow graduate students to share their works with the rest of the D/deaf community.

Faculty Editorial Supervisor



Dr. Day, Ph.D., received her Ph.D. in Clinical Psychology from Gallaudet University. She completed her internship at Baylor College of Medicine in Houston, Texas; and she completed her post-doctoral training in Pediatric Neuropsychology at The Kennedy Krieger Institute/Johns Hopkins Medical School. She has been an Assistant Professor in the Clinical Psychology Doctoral Program since 2012 where her responsibilities include teaching, research, supervision, and mentoring of graduate students. Her current research interests include: adapting Parent-Child Interaction Therapy (PCIT) to be accessible for deaf individuals, adapting psychological measures for deaf individuals, and developing a technology based literacy program for deaf students. Dr.

Day is a peer reviewer for The Journal of Deaf Studies and Deaf Education. Her most recent publications have included articles in the Journal of Deaf Studies and Deaf Education and Rehabilitation Psychology. She has also presented her research at local, national, and international conferences. She is committed to involving graduate students in all aspects of the research process, including publication and dissemination of findings.

Publication of *Chronicles of Psychology* would not be possible without the students who answered the call to review manuscripts submitted for publication. We, Editors-in-Chief and the Faculty Editorial Supervisor, are very grateful for their thorough and timely efforts to ensure that manuscripts appearing in *Chronicles of Psychology* adhere to high scientific standards. The following students served as manuscript reviewers for *Chronicles of Psychology* in 2015.

Aileen Aldalur, B.A., received her Bachelor's degree in Psychology from Gallaudet University. She completed an undergraduate thesis examining media and cultural variables as predictors of body image in D/deaf individuals. Now in her second year of the Clinical Psychology program at Gallaudet University, her research focuses on measuring Deaf acculturative stress. She has presented her work at the Association for Psychological Science, the Society for Research on Adolescence, and Gallaudet University's PsiChi Research Conference.

Yasmeen Alhasawi, M.A., received her Master's degree in Psychology with a specialization in Clinical Psychology at Gallaudet University. She completed a research fellowship in molecular genetics and otolaryngology at the Harvard Medical School. Her research interests are in audio-visual integration and long-term auditory memory in late-deafened adults. Ms. Alhasawi has presented her research at conventions for the American Psychological Sciences and the Association of Late Deafened Americans. She currently serves as an international ambassador to Psi Chi National Honor Society of Psychology.

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Nicholas M. Gala, M.A., has a Bachelor of Science in Neuroscience and Bachelor of Arts in Psychology and American Sign Language from the University of Rochester, as well as a Master's of Arts from Gallaudet University and a Master's of Science in Applied Behavioral Analysis from Florida Institute of Technology. Currently, he is in his fourth year of the Clinical Psychology PhD program at Gallaudet University. He hopes to specialize in Forensic Neuropsychology, and holds research interests in affective neuroscience and emotional display rules.

Evan Goodman, M.A., is a PhD candidate in the clinical psychology program at Gallaudet University. His research interests are in the areas of ASL and cognition, psychometrics, neuropsychology, psychopharmacology, and human factors in transportation. Mr. Goodman has performed research with data collected from Visual Language, Visual Learning (VL2) projects at Gallaudet and has conducted important studies related to factors affecting public transportation perception and usage by deaf students.

Wyatte Hall, Ph.D., is a recent Deaf graduate of Gallaudet University's Clinical Psychology program. He is currently a Psychology Postdoctoral Fellow in the Department of Psychiatry at UMass Medical School. He is working alongside Melissa Anderson, Ph.D. and Marlene Elliott, CI/CT to establish the DeafYES! Program, a Deaf behavioral health center that provides clinical services, provides clinician and interpreter training, and conducts research on improving behavioral health services for Deaf people.

Hannah Joharchi, M.A., previously earned a Masters of Arts in General Psychology as well as a Masters of Arts in Negotiation, Conflict Resolution, and Peacebuilding. Currently in her fifth year in the Clinical Psychology program at Gallaudet University, Hannah is working on research with Deaf immigrants as well as research regarding sexual well-being in the Deaf community. She recently published with the *Chronicles* and has articles in review regarding Deaf-hearing research partnerships.

Gillie Strauss, B.A. has a Bachelor of Arts in Communication Arts and Sciences and Linguistics from the Pennsylvania State University. Currently, she is in her second year of the Clinical Psychology Ph.D. program at Gallaudet University. She is working for the on campus Counseling and Psychological Services. Gillie's interests include child psychology, as well as Parent Child Interaction Therapy (PCIT). Her current research explores quality communication in families with hearing parents and deaf children.

Julie Tibbitt, M.S., is currently in her third year as a doctoral student in the Department of Education at Gallaudet University. She earned her two Bachelor degrees in Social Work and Legal Studies, and then her Master degree in Deaf Education. She works with assessment and data at Maryland School for the Deaf, Columbia Campus. Her current research interests lie in curriculum development and fair assessment for deaf students.

Angela Turner, M.A., is currently in her fourth year as a predoctoral student in Gallaudet's Clinical Psychology Program. She earned her Bachelor of Arts degree in Psychology from the University of Denver and recently earned her Master of Arts degree in Clinical Psychology from Gallaudet. Her published manuscript in Language and Speech was the result of her undergraduate honors research thesis. Her current research endeavors focus on resilience related to interpersonal skills in children with multiple complex conditions, including deafness in the presence of an additional diagnosis.

Submission. Manuscripts should be submitted electronically (.rtf or .doc file ONLY) to psychology.chronicles@gallaudet.edu. Prior to submission, please carefully read and follow the submission guidelines detailed below. Manuscripts that do not conform to the submission guidelines will be returned without review. The *Chronicles of Psychology* encourages all graduate students to submit manuscripts for publication. Although submissions with relevance to the issues of deafness and disability are especially welcomed, the *Chronicle* does accept materials related to a wide variety of topics in psychology. The process of publication of the *Chronicle* closely mimics that of other peer-reviewed professional journals which provides students with a great opportunity to gain exposure to the publishing process. We welcome article submissions in the following areas:

- Quantitative and qualitative empirical research
- Theoretical/conceptual papers
- Comprehensive literature reviews
- Case studies that highlight critical or overlooked issues of assessment and therapy with persons from minority and/or disability groups
- Manuscripts addressing the unique challenges of psychologists working with exceptional clients

Acceptance policy. Submissions are accepted following an open call for papers, with the aim to print two *Chronicle* issues per year. We are currently opening the winter solicitation, with a submission deadline of January 15th, 2016. All manuscripts submitted to the *Chronicles* are peer reviewed. The first round of peer review is expected to take up to 4 weeks. Once the submitted manuscript is reviewed, the primary author will receive e-mail notification (approximately 6-8 weeks after initial submission) with information about

- Acceptance,
- Acceptance with minor revisions,
- Encouragement for major revisions and resubmission, or
- Rejection of their manuscript.

Accepted manuscripts are generally published within four to six months after initial submission depending upon submission dates, revision turnaround time, and at the discretion of the Editors-in-Chief. If you have any questions about the submission process, please e-mail the Editors-in-Chief at psychology.chronicles@gallaudet.edu.

Submission guidelines. All manuscripts submitted will be initially screened by the editorial board and then sent out for masked peer review, if evaluated as appropriate for the journal.

Masked Review Policy. The *Chronicles of Psychology* uses a masked review process. It means that authors are asked to submit two separate documents, a cover letter with all identifying information about the author and the de-identified manuscript. The cover letter should include the title of the manuscript, the authors' names and institutional affiliations, and the date the manuscript is submitted, as well as the name, address, affiliation, and full contact information, including email address and phone number (with specification - voice, text, videophone) for each of the authors. The first page of the manuscript should include only the title of the manuscript and the date of submission. Footnotes containing information pertaining to the authors' identity or affiliations should be removed. Every effort should be made to see that the manuscript itself contains no clues to the authors' identity. A masked review process means that the authors also will not be informed about the identity of the specific reviewer(s) of their manuscript, although all reviewers' names will be listed in the corresponding edition of the *Chronicle*. Authors are asked to refrain from any attempts to discuss details of the reviewing

process of their manuscript with their assumed reviewer even after the process of reviewing is completed.

Manuscript Preparation. Authors should prepare manuscripts according to the Publication Manual of the American Psychological Association (6th Ed.). Manuscripts may be copyedited for bias-free language (see Chapter 3 of the *Publication Manual*). Double-space all copies. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts do appear in the *6th Edition of the APA Manual*.

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References. Authors should list all references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section. Follow the APA *Manual* guidelines for reference formatting.

Ethical Principles. It is a violation of APA Ethical Principles to publish "as original data, data that have been previously published" (Standard 8.13). In addition, APA Ethical Principles specify that "after research results are published, psychologists do not withhold the data on which their conclusions are based from other competent professionals who seek to verify the substantive claims through reanalysis and who intend to use such data only for that purpose, provided that the confidentiality of the participants can be protected and unless legal rights concerning proprietary data preclude their release" (Standard 8.14). APA expects authors to adhere to these standards. Specifically, APA expects authors to have their data available throughout the editorial review process and for at least 5 years after the date of publication. Authors are required to state in writing that they have complied with APA ethical standards in the treatment of their sample, human or animal, or to describe the details of treatment.

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