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NOTE FROM THE EDITORS-IN-CHIEF

It has truly been an honor and a privilege to oversee the development of this year's publication. We received numerous high-quality submissions from universities around the world and are grateful to all the authors who submitted to the journal. Undergraduate researchers are an essential asset to the research community and the psychology community at large. Their dedication, curiosity, and hard work are the pillars that will set the foundation for future groundbreaking discoveries.

We would like to extend our thanks to all the staff and editors of this year's journal. Your ability to work around the clock, meet deadlines, and guide authors through this long publication process is both commendable and telling of the quality of your character. We would also like to express our gratitude to our graduate advisers for their guidance, wisdom, and continued support. Their involvement with the journal ensures that our publication lives up to the gold standard of academic journals. Each person's involvement with the journal helps keep everyone on the team accountable and ensures that the best research is recognized by a world-class institution like UCLA. Lastly, a sincere thank you to our mentor, Professor Blaisdell. Professor Blaisdell is truly an inspiration to all those who are involved in research, especially undergraduates. His continued support of our publication showcases his commitment to student success and the progression of research.

With this being the journal's fifth publication, it is exciting to see what new discoveries in psychology and its related fields are to be made in the future. It is very reassuring to know that undergraduates across the world are not only getting involved in research at an early age but are also interested in sharing their findings on an international platform. In the years to come, the Undergraduate Research Journal of Psychology will continue to serve as a professional, academic outlet that undergraduates across the world can utilize to share their findings with the scientific community.

Sincerely,
Sabrin Sidhu and Sydney Simon
Editor-in-Chief and Associate Editor-in-Chief

PREFACE

Aaron P. Blaisdell, Ph.D.
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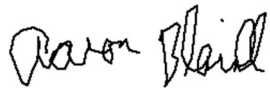
Last year I was invited to contribute a preface to the fourth volume of *The Undergraduate Research Journal of Psychology* at UCLA, published in 2017. Afterward, the editorial staff of the URJP invited me to serve as their official faculty advisor. I was honored by the request and offered my humble advice during the past year. As a faculty advisor, I got to witness the inner workings of the journal's editorial team and what goes into crafting each annual issue of the URJP. I was delighted by what I saw. The editorial board is made up of undergraduate students who have a wide array of interests and who hail from a diversity of backgrounds. But what each and every member had in common was a passion and drive for publishing psychological science. Much care and thought went into each decision and in curating the content of the issue you now hold in your hands or read on your screen. Although young and in the midst of guiding their own idiosyncratic journeys through academia (and life in general), these students showed an unflagging commitment to a review and editorial process that was fair, balanced, and objective. I applaud the professionalism and personal touch this exemplary editorial board brought to the task!

A glance through the table of contents of this issue of the URJP reveals something quite fascinating. Of the eight articles published, six of them address issues involving mental health and psychopathology. That's 3/4^{ths} of the entire issue! These mental health-focused papers cover a range of topics, from post-traumatic stress disorder to autism spectrum disorder to depression to psychological strategies for coping with physical illness, and in a variety of contexts, from clinical settings to the classroom to online social media. I have been a university professor since 2001, and have taught dozens of classes and interacted with thousands of students over the past 20 years of

my career. One major shift in the undergraduate student population that I have witnessed is a dramatic increase in both clinical and subclinical levels of anxiety, depression, attention disorders, learning disabilities, and stress disorders. This suggests that major changes have been taking place in the developmental contexts of today's youths, even when compared to my own childhood of the 1970s and 1980s. I have written about possible sources of these changes (Blaisdell, 2015; 2017; see also Li, van Vugt, & Colarelli, 2018) but clearly a lot more work needs to be done to understand the causes of this change and to seek solutions that address the current mental health epidemic afflicting modern society, and especially our children, adolescents, and young adults. This is where the field of Psychology plays a critical role, and the articles in this journal reflect some of the latest attempts to address these challenges. Scholarly outlets such as the URJP will continue to play a vital role in the dissemination of important, cutting edge research that is relevant to today's pressing issues and hot topics. Read, learn, and act!

Yours in health,



Professor Aaron Blaisdell

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RESEARCH

The Theory of Constructed Emotion and Post-Traumatic Stress Disorder

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Post-traumatic stress disorder (PTSD) is a psychological disorder characterized by various debilitating symptoms related to mood, arousal, and cognition. The emotional processing theory guides the majority of research and therapeutic approaches of PTSD. This theory argues that PTSD is caused by an over-activation of networks in memory necessary for inciting fear responses. This paper presents a new approach through which to interpret the etiology of PTSD. Lisa Feldman Barrett's theory of constructed emotion presents a novel perspective on emotion that challenges the premise of the emotional processing theory. This paper examines current theories on emotion and their relation-ship to theories of PTSD. The author then utilizes the theory of constructed emotion to hypothesize an original explanation for the symptomology and the etiology of PTSD. The author refers to this as the exemplar construction hypothesis of PTSD.

Mental health researchers have provided various psychological theories to explain the development of Post-Traumatic Stress Disorder (PTSD). In 1986, Foa and Kozak introduced the emotional processing theory as an explanation for PTSD. Their theory proposes that 'fear structures' proposed by Lang (1977) are the cause of PTSD. Foa maintained that a fear structure is a part of the brain that gives rise to the experience of fear and related behavioral responses (as cited in Lang, 1977, p. 2). Fear structures are activated by various, dangerous stimuli. In the case of PTSD, fear structures are overactive; they will elicit avoidance behaviors (e.g., running away) in response to any stimuli associated with the trauma (Rauch and Foa, 2006). Because these structures are so active, a victim of trauma may express avoidance behaviors so frequently that they would never be able to judge the trauma-related cues to be safe and *not* a genuine predictor of the trauma reoccurring. Rauch and Foa (2006) maintain that these types of behavioral responses cause fear structures to address the world as "dangerous" as well as addressing the self as "incompetent" (as cited in Foa & Riggs, 1993, p. 2). Collectively, this theory argues that PTSD develops due the over-activation of cognitive networks in the brain dedicated to the production of fear and related behavioral responses.

Early researchers of emotion hypothesized that emotions occur as an instinctive reaction to stimuli (Barrett, 2017, p.xii). This frame of thought not only instructed researchers on how to perceive emotion, but also on how to understand mental illness. The emotional processing theory is evidence of this. This theory is perhaps the foremost paradigm used to guide research on PTSD (Monson et al., 2014). Moreover, it is essential to current treatment options for PTSD (Foa, Huppert, & Cahill, 2006). Contrary to this view of emotion, the theory of

constructed emotion argues that humans do not have inherent neural circuits that give rise to reflexive, emotional responses (Barrett, 2017, p.xii). Instead, the theory claims that emotion begins with very basic and unembellished physical sensations. These physical sensations are referred to as interoception and is thought to be a combination of how much arousal, relaxation, pleasure, or displeasure one experiences. Individuals' brains rapidly attribute meaning to their interoception using predictions. Predictions occur at an unconscious level of the brain. The constant appraisal of one's interoception is referred to as a prediction loop. They enable individuals to identify the meaning of their physical sensations as they arise in any context or situation. Individuals predict their interoception to be either physical (e.g., hunger, dizziness, pain, etc.) or emotional (e.g., happiness, sadness, fear, disgust, etc.). If one's prediction of an emotion concept is consistent with their present environment, then the individual will generate a particular emotion (Barrett, 2017, p.30).

Predictions are essential to the active experience of the world. Barrett (2017) refers to the function of predictions when she writes, "You might think that your perceptions of the world are driven by events in the world, but really, they are anchored in your predictions..." (p.62). They help people continually use past experiences to make assumptions about the immediate stimuli in our percept (Barrett, 2017, p.62). Considering the emotional processing theory of PTSD does not address the role of predictions, researchers must question its theoretical efficacy. The author of this paper contends that the current theoretical framework of PTSD must be reassessed in light of the theory of constructed emotion. The theory of constructed emotion has not been given enough attention in abnormal psychology. So initially the author of this paper questions: What must happen so that emotion becomes intensely recurrent and eventually pathological? In the case of those with PTSD, the author claims that this process of constructing emotion is disordered by alterations in emotional granularity, body-budgeting, prediction loops, and affect.

There is insufficient reason to trust that all concepts of emotion are created equally, especially in psychopathology, whereas emotion is typically distressful and pathological. This paper claims that in the case of PTSD, individuals predict instances of emotion using concepts of emotion exclusively relevant to the trauma. These emotion concepts cause disordered mood, arousal, and cognition. Emotion concepts related to a psychological trauma are categorized differently from more typical types of emotion concepts. The author argues that emotion concepts developed by exposure to psychological trauma are stored in memory as exemplar concepts. This differentiation will cause individuals to express the collection of adverse symptoms characterized as PTSD. Collectively, these suppositions address both the etiology and the symptomology of PTSD as they relate to the theory of constructed emotion. The author refers to this original work as the exemplar construction hypothesis of PTSD. This hypothesis bridges the disparity between modern theory on emotion and theory on PTSD.

Background

Post-Traumatic Stress Disorder

A trauma is the direct experiencing or witnessing of an event such as "actual or threatened death, serious injury, or sexual violence" (American Psychiatric Association, 2013). Individuals diagnosed with PTSD experience at least one intrusion symptom (e.g., re-experiencing of trauma through 'flashbacks' or nightmares), at least one avoidance symptom (e.g., active avoidance of stressful cues related to the trauma), at least two negative alterations in mood (e.g., persistent emotion related to trauma, limited

capacity to perceive positive emotions), and at least two alterations in arousal and reactivity (e.g., hypervigilance, difficulties with concentration) (American Psychiatric Association, 2013). The diagnosis can only be provided only if the symptoms last longer than a month (American Psychiatric Association, 2013).

The Exemplar Construction Hypothesis of PTSD

Emotion Concepts of Trauma

Individuals are constantly using predictions to provide meaning to both their physical sensations and sensory input. In order to provide meaning to their physical sensations, individuals use concepts of emotion. Concepts of emotion are mental representations of emotion that are variable to memory, knowledge, and context. Due to this variability, all instances of fear are dissimilar from one another. When individuals experience a traumatic event, they will develop a new concept of fear that is specific to the memory of the trauma. The provision of this emotion concept is potentially harmful because concepts are fundamental to how people actively perceive their themselves and their environment. The author claims that the symptomology of PTSD develop as a response to the consistent use of trauma-related concepts of emotion when predicting the meaning of the world.

The Symptomology of PTSD

Low Emotional Granularity. Emotional granularity refers to one's ability to detect cues in interoception that makes concepts of emotion (such as anger and anxiousness) dissimilar from one another. Barrett (2017) observes that people of various psychological disorders, "all tend to exhibit lower granularity for negative emotion", or a diminished ability to distinguish between various unpleasant emotions (p. 183). The author maintains that this stance remains true in the case of those with PTSD and that this has one main effect. Due to lower emotional granularity, people with PTSD will more often predict their unpleasant interoception with emotion concepts related to the trauma as opposed to an emotion more pertinent to the present context. This explains for the occurrence that an individual's mood is consistent with their perceptions of the trauma (American Psychiatric Association, 2013). Moreover, the affected individual will more often predict their interoception with emotion concepts, as opposed to physical concepts. For instance, physiological sensations (or interoception), synonymous with tiredness could be mistaken for a more proximate belief in the concept of sadness (Barrett, 2017, p.31). In either case, an individual with PTSD will more likely predict the meaning of their interoception with a trauma-related concept of fear.

Individuals with PTSD also experience cognitive distortions, or beliefs about one's environment that are illogical and based in far-reaching generalizations. In an example of those with PTSD, these distortions mirror an untruthful representation of the world (e.g., 'The world is unsafe.') and the self (e.g., 'I am going to lose control.') (American Psychiatric Association, 2013). Affective realism is the source of these cognitive distortions. Affective realism refers to the patterns of cognitive views that are influenced by emotion (Barrett, 2017, p. 75). So, it is reasonable to assume that one's poor affect can lead to faulty cognitions and directly represent one's strong held beliefs in the world.

The author hypothesizes that cognitive distortions are based on the affect that is provided by the emotional content of the trauma and therefore, have related concepts from which they stem. Cognitive beliefs concerning one's perception of the 'world' are based on the emotions related to the trauma (an experience that happens as a result of

one's environment). The distortions of the 'self' heavily rely on the appraisals of one's experiences of hyperarousal symptoms and re-experiencing symptoms (personal and inward related experiences). The self is 'helpless' because of uncontrollable intrusions and relentless feelings of unpleasant arousal. These claims are well substantiated especially when considering that the type of mood that occurs with PTSD is consistently negative and related to the trauma. In a reciprocal interaction, the cognitive distortions are representative of one who is unable to construct emotion outside the given repertoire of emotions provided by the trauma.

Disordered Predictions Loops. Prediction loops have four steps (Barrett, 2017, p.63). In a regular instance, an individual first makes a *prediction* about their given environment or their interoception using past experience. The individual then uses these predictions as a *simulation* to conceptualize the given bodily sensations and context. In a *comparison* of the sensory input to the simulation, the individual *resolves all of the errors* or incongruences between the simulation and the actual, incoming sensory input. Predictions occur repeatedly until one's experience is accurately represented. This is the ideal procedure in which a person constructs their experience. Sometimes however, individuals make predictions about their interoception that does not match sensory input (Barrett, 2017, p.62). When this occurs, an individual will make countless predictions about their interoception until they finally match the actual incoming stimuli. The author claims that when individuals incorrectly predict their interoception using emotion concepts related to the trauma, they will then express avoidance symptoms and intrusion systems.

People diagnosed with PTSD often show chronic avoidance of any stimuli that serve as reminders of their trauma (American Psychiatric Association, 2013). What, however, causes one to avoid reminders of the trauma even though these stimuli no longer represent real danger? The author hypothesizes that individuals with PTSD consistently avoid reminders of the trauma as a result of false, uncorrected predictions. In the presence of a stimulus associated with the trauma, an individual with PTSD will use trauma-related emotion concepts to predict an instance of fear. In this instance of fear, the individual will avoid the trauma reminder, because the trauma reminder is thought to elicit the reoccurrence of the trauma. It is essential to stipulate that predictions founded by trauma-related emotions are false predictions considering that the stimulus that elicited the prediction does not actually precede any danger or the trauma re-occurring. This instance is uncommon but essential to the definition. In this act of avoidance, the individual will never predict an emotion concept alternative to the trauma reminder. Put differently, a person with PTSD is unable to address the trauma reminder in a prediction loop, effectively never correcting the prediction. In a rapid sequence of prediction errors, based in trauma-related concepts of fear, an individual with PTSD will express behaviors necessary to avoid reminders of the trauma.

People with PTSD also experience intrusion symptoms. Intrusions are any unwanted and unwarranted re-experiencing of the trauma that mistakes the individual to believe that the trauma is re-occurring (American Psychiatric Association, 2013). By careful review of the literature, the author argues that the pathology of re-experiencing begins with a false prediction and goes henceforth. Once an afflicted person has created a false prediction in response to trauma-related stimuli, the simulation becomes activated, as long as one does not actively avoid the stimuli following the prediction. This simulation is never accurately compared to the *actual* context of one's environment. Instead, the simulation is compared to an environment that is riddled with

threat. An individual perceives the environment inaccurately for two reasons. First, the individual is simulating an instance of fear and *expects* the actual environment to confirm that. Second, the trauma-related stimuli, which originally issued the prediction, is perceived to take on a meaning identical to the trauma. The instances of trauma-related fear perpetuate without an opportunity to resolve the errors for the reason that the sensory input is consistent to trauma-related concepts of emotion. In this rapid cycle, one is unable to perceive their instance of emotion as incorrect. Consequentially, the emotions and its supporting traumatic memory are fully reinforced over and over again; as a result, the fear memory and its simulation become one's reality. In this way, uncorrected simulations cause re-experiencing symptoms.

Amplified Body Budgeting. Individuals with PTSD experience hyperarousal and increased reactivity (American Psychiatric Association, 2013). In observation of the theory of constructed emotion, hyperarousal symptoms are a result of an amplified body budget, or parts of one's brain that "…sends predictions to the body to control its internal environment: speed up the heart, slow down breathing…" (Barrett, 2017, p. 73). To consider the coordination between predictions and body-budgeting, there is yet another unregulated system of arousal. When an experience like trauma is consistently used as a predictor, the body budget will send physiological signals to accommodate for the predicted sense of fear. For someone who is chronically predicting fear, the body budget will constantly regulate one's body to be hyper-aroused. Affect, as claimed by Barrett (2017), "primarily comes from prediction" (p. 78). When predictions are based in trauma(s), one may experience hyperarousal and unpleasant emotion. Together, these cause the development of a negative affect. Due to the presence of avoidance symptoms, the afflicted individual will predict fear and utilize their body budget to escape the associated stimulus. The same is true for re-experiencing symptoms. Due to failed prediction loops, the prediction of fear becomes chronic, leaving an individual with PTSD to experience constant hyperarousal.

States of hyperarousal become chronic as a result of one's affective niche. An affective niche refers to the particular pieces of one's environment that their brain will predict to have influence on their body budget and thus their affect (Barrett, 2017, p. 73). For someone with PTSD, it is reasonable to assume that one's affective niche becomes distinctly narrow and specifically keen on identifying trauma-related stimuli. By a prediction of fear, one's body budget will input the necessary physiological arousal related to fear. This state of high arousal is kept persistent when one's affective niche develops a high affinity for identifying fear in trauma-relevant stimuli. Hence, the afflicted individual experiences continuous states of hyperarousal.

PTSD may also occur with another criterion of symptoms, called dissociation (American Psychiatric Association, 2013). Although this cluster is not required in diagnosing PTSD, it still shares a relationship to prediction loops. Dissociation can occur as depersonalization or derealization. Depersonalization is characterized as an "experience of being an outside observer or detached from oneself" (American Psychiatric Association, 2013). Derealization is characterized as an "experience of unreality, distance, or distortion" (American Psychiatric Association, 2013).

The author argues that dissociation is caused by a cessation in one's predictions. When chronic fear exhausts the hyper-aroused physiological system, the body budget creates an instance in which one is essentially disconnected from their interoception. Consequently, the individual is unable to make a prediction of fear, and unable to utilize the body-

budget to form a fear response. This cessation occurs because the body budget demands an instance of recovery from the chronic and unrelenting state of fear predictions. The body provides a response to ensure that the physiologically exhausting state of fear can no longer perpetuate. This disconnect from their interoception causes dissociation. Under these circumstances, the individual is subject to what is almost purely sensory input. Without predictions, an individual's interoception and their environment may no longer be conceptualized by physical or emotional concepts. An individual with PTSD would perceive reality as distorted and unreal (derealization) when there is an absence of prediction. By the disengagement from one's interoception, an individual will feel disconnected from their body (depersonalization). In this way, an individual's consciousness is disengaged and their environment is disordered.

The Etiology of PTSD

Trauma-related concepts are presumably not useful in predicting instances of actual danger. For this reason, the use of trauma-related emotion concepts can be effectively referred to as errors in prediction. These prediction errors give rise to the symptomology of PTSD. Alterations in cognition and mood are caused by one's construction of the self and the world through the use of emotions concepts based in memory of the trauma. In addition to this, the brain's use of trauma-related concepts when making predictions and simulations causes intrusions and re-experiencing symptoms. As a consequence of predictions generated by trauma-related concepts, an individual will develop hyperarousal symptoms and possibly dissociation. This contingency between trauma-related emotion concepts and the symptomology is essential to the exemplar construction hypothesis of PTSD.

Barrett argues that people predict emotion using goal-based concepts, or concepts that are contingent to the present context and utilized given a particular goal in mind (2017, p. 90). So then, why would people with PTSD predict their interoception using only emotion concepts relevant to the trauma? Trauma survivors very often perceive themselves to have been helpless and perhaps passive perceivers to a situation that they could not control (Salcioglu, 2017, p. 117). As a consequence of these perceptions, the trauma memory and its associated emotion concepts do not have any advantageous purpose for assisting in the construction of one's emotions. Concepts of the trauma may not be represented as a goal-based concept since trauma is presumably no longer pertinent to one's current environment. The author contends that these concepts of fear are instead represented as "exemplar" concepts of emotion. An exemplar concept is a representation of an emotion that is neither abstract nor goal-based, and instead embodied by a singular instance of memory. In the case of PTSD, the memory would be a trauma. The discrepancy between goal-based concepts and exemplar concepts has downstream effects on information processing. This difference is necessary for causing the symptomology of PTSD. The author hypothesizes that individuals with PTSD construct their perception of the self and the world with concepts of fear that are discretely rooted in the memory of the trauma.

People with PTSD utilize these concepts from memory often due to typicality effects. Kiran and Thompson (2003) review that typicality effects in memory assume that people are more likely to respond faster to information that is typical of a category as opposed to information that is atypical (as cited in Hampton, 1979). Trauma is initially represented as an atypical instance of fear. Trauma-related concepts become typical once utilized in uncorrected prediction loops. For example, an

individual may predict fear and instantly avoid it. In a fixed cycle, an individual will use the trauma-related exemplar concept to predict fear. In this way, the atypical concept of emotion becomes typical. Due to typicality effects, the trauma-related exemplar concept has exceedingly high affinity to be conceptualized as an instance of emotion. When an atypical exemplar concept of trauma progresses into a typical exemplar concept, an individual will consistently construct emotion in ways that are consistent with the symptoms of PTSD. This is the exemplar construction hypothesis and this is, perhaps, how PTSD comes to be.

Discussion

The theory of constructed emotion assumes a different perspective as compared to the emotional processing theory. The emotional processing theory proposes that fear structures guide responses to danger. The exemplar construction hypothesis does not confirm this argument. Instead, it hypothesizes a different approach, whereas the etiology of PTSD is described by the role of predicting emotion. Thus, the exemplar construction hypothesis becomes a contending model to the theoretical explanations of the emotional processing theory. The role of predictions creates a new framework for the treatment of PTSD. Thus, future research should address the validity of this hypothesis and if its postulates are valuable for the treatment of PTSD. In addition to this, future research on treatment should address particular ways in which one may falsify the connection between sensory input and the misguided prediction. Defining the limitations of this hypothesis is up to further discussion and more investigation that could not yet be established in this paper.

The use of past experience to manage one's perception assumes that people maintain a very active approach to constructing reality. This stance however should not assume the presence of psychopathology to be the fault of someone with a mental disorder. This belief is neither sufficient to explain the psychopathology of PTSD or beneficial to the recovery of those who suffer from it.

Assessing PTSD, in light of the theory of constructed emotion, is essential to furthering the progress needed to understand PTSD. This particular integration, the exemplar construction hypothesis of PTSD, investigates the nature of emotion and cognition to explain its psychopathology. An implementation of various, psychological theories is essential to earning a comprehensive appreciation of any topic. This paper recognizes and attributes to the importance of the newly proposed theory on emotion and its effects on psychopathology. In consequence, a disorder understood to be complex is further evaluated and advanced to a new level of comprehension.

About the Author

Hunter Coury is a senior at Northeastern University, working towards a B.S. in Psychology. He was born and raised in Pittsburgh, PA. After transitioning to Boston, MA, Hunter became passionate about mental health. His goals are to be the best at whatever he does, enjoy what he does, and to support others in the process. His other interests include archery, cooking, baking, photography, music, travel, and friends.

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Mental Illness Stigma: A Literature Review on Intervention Methods

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Psychological disorders such as major depressive disorder are prevalent within the United States, but not many individuals are actually in treatment (Hunt & Eisenberg, 2010). This discrepancy has provoked extensive research on the barriers and facilitators of help seeking behaviors, with stigma being identified as a top barrier (Gulliver, Griffiths, & Christensen, 2010). Stigma should be understood as a social phenomenon. When individuals adopt negative views about a certain group of people, they may use those views to inform negative behaviors towards anyone in that group. This paper reviews mental health stigma interventions that have been studied to date and makes recommendations for future research. As stigma surrounding mental illness is usually perpetuated by those who do not have a psychological disorder, anti-stigma interventions that target the general public are emphasized. More specifically, this review highlights video-based interventions because they can be distributed across large groups of people and have demonstrated the ability to achieve significant attitude change (Corrigan, Larson, Sells, Niessen, & Watson, 2006). Nonetheless, there is still room for improvement in mental illness stigma research. Because most studies compare in-person versions of the intervention to their video-based equivalent, there is a need to design new studies that observe the effectiveness of the video medium overall as a means for attitude change. Moreover, because there is little research comparing these video-based interventions with a placebo control condition there is a need for new studies.

When individuals experience life changes that affect their day-to-day routines, they may experience increased stress. In fact, research has shown that in college students, life changes such as those that affect sleeping or eating patterns are correlated to high levels of stress (Ross, Niebling, & Heckert, 1999). Moreover, these stressors are believed to be contributing to the increase in depression prevalence within this group. A study conducted by the National Institute of Mental Health (NIMH) elaborated on this notion and reported that 30% of college students were suffering from functional impairment due to their depression (2014). With stress augmenting depression onset and depression leading to functional impairment, there is an evident need to investigate the various ways that we can intervene.

When it comes to interventions for depression, cognitive behavioral therapy (CBT) has appeared as one of the most effective solutions. Given that CBT is largely homework-based, much of the progress made in treatment is actually performed by the patient outside of the office. In the long term, this increases the patients' sense of self-efficacy and allows them to develop skills that they can use on their own (Hollon, Thase, & Markowitz, 2002). Indeed, a small but significant relationship has been found between homework completion and decrease in depression symptoms over the course of CBT (Sachsenweger, Fletcher, & Clarke, 2015). This

provides some support for the importance of homework in CBT's efficacy against depression. Nonetheless, individuals with psychological symptoms are not relying on treatments like CBT as frequently as one might think.

In a review of help seeking behaviors in college students, the American College Health Association-National College Health Assessment (ACHA-NCHA) found that more than 1 in 3 students reported feelings of depression in the last year. Of the college students in the sample that were diagnosed with depression, only 24% were actually in treatment (Hunt & Eisenberg, 2010). From this information, it becomes of interest to better understand how the severity of these symptoms plays a role in help seeking.

A study by Kim, Saw and Zane (2015) aimed to do just that. After checking for depressive symptoms in college students, different levels of depression severity were defined - low and high – determined by scores on the Mood and Anxiety Symptom Questionnaire-Anhedonic Depression Subscale (MASQ-AD). Subjects then were provided with vignettes describing a fictional character who is experiencing symptoms of major depressive disorder. They were then asked to define how they would deal with a similar situation. Results demonstrated that participants who were in the high group (having a score of 21 or over on the MASQ-AD) were more likely to deal with depressive symptoms on their own than those in the low group. Individuals in the high-depression group were also less likely to talk to another individual (friend, family member, psychiatrist, family doctor, etc.) about their symptoms than someone in the low-depression group. These findings suggest that the level at which individuals experience their symptoms might predict their intentions to seek treatment.

Nonetheless, symptom severity is not the only barrier to help seeking known in the field. In a systematic review, common barriers and facilitators to mental health help seeking in young people were identified (Gulliver et al., 2010). Within the 20 included studies, 13 were considered qualitative and 7 were considered quantitative. Of the qualitative studies, 10 labeled public stigma and self-stigma as a main barrier theme. The remaining 3 qualitative studies, which labeled facilitators to mental health help seeking, all identified previous positive experiences with mental health as a facilitator. Although there were no facilitators defined in the 7 quantitative studies, there were a handful of barriers that came up. These included themes like stigma, discomfort discussing mental problems, and a preference for relying on one's self. Of all of these themes, however, the research team noted that the most commonly mentioned barrier to help seeking behaviors was stigma.

What is Stigma?

Stigma is a phenomenon from social psychology where individuals adopt negative views about a certain group and then use those views to determine how they interact with individuals of that group. Because those views rarely come from factual information, they frequently perpetuate negative stereotypes and encourage negative behaviors. In the discussion of help seeking behaviors and mental illness, stigma presents itself in two main forms depending on who is involved. The two main forms are public stigma and self-stigma.

Public stigma is stigma supported by those outside of a targeted group through discriminating against members of that targeted group. For example, individuals from the general population who avoid interacting with people suffering from mental illnesses would be supporting the public stigma surrounding mental illness. Furthermore, self-stigma would be the opposite perspective. Acting as

an internalization of public stigma, self-stigma is experienced by members of the targeted group. As expected, this interaction between the different types of stigma has negative effects for both members of the targeted group and those outside of the group. Individuals without mental illnesses may be fearful of people with mental illnesses which then may lead them towards discriminative behaviors. At the same time, people who have mental illnesses frequently experience a decrease in self-esteem and perceived self-efficacy because they notice people's fear and behaviors. In addition, it has been observed that when stigmatized individuals internalize the negative attitudes from public stigma, they participate in avoidance behaviors such as avoiding mental health help seeking (Corrigan & Fong, 2014). Research studying anti-stigma interventions has been on the rise because it is believed that reducing stigma increases the likelihood that people will seek help and experience symptom relief.

Anti-Stigma Interventions

Generally, the goal of an anti-stigma intervention is to induce positive attitude change towards a specific group or idea. There are many types of interventions available for both stigmatized and non-stigmatized individuals. In some cases, interventions have even been shown to be effective in both populations. With all of the various methods in mind, a team of researchers constructed a multilevel model as part of a review to better organize and consolidate empirically supported anti-stigma interventions (Cook, Purdie-Vaughns, Meyer, & Busch, 2014). In short, the model is made up of three main categories, each representing a unique approach to attitude change: intrapersonal, interpersonal, and structural.

Interventions were categorized based on where and how they appeared in the social sphere. A CBT intervention for instance, was categorized as an intrapersonal approach because it works within the individual. By offering psychoeducation about mental illness and teaching stress management skills, someone with depression for struggling with self-stigma for example, would be able to reduce the impact of that stigma in their day to day life. In contrast, the interpersonal approach usually targets individuals from the general population. Through either an informative presentation or direct contact with someone who has experience with a psychological disorder, those without personal experience are able to challenge any misconceptions they may have. Lastly, the structural approach encourages attitude change through mass distribution of messages to all individuals in the population regardless of experience with a psychological disorder. Due to the fact that the audience of structural level interventions is much larger than that of intrapersonal and interpersonal interventions, they are most commonly disseminated by government organizations, corporations, and other large institutions that have the necessary resources. Because education, contact, and public campaign interventions are some of the most cited for each of the different approaches, it is believed that looking at their core principles would provide a comprehensive understanding of the multilevel model as well as how different methods target different effects of stigma.

Anti-Stigma Interventions: Education

When it comes to education interventions, the main objective is improving mental health literacy. As defined by Dr. A.F. Jorm in 1997, mental health literacy is "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" - essentially, how we understand psychological disorders and how we recognize them (Jorm, 2000). With this in mind, it is unsurprising that mental health literacy has been a key aspect of anti-

stigma interventions for both stigmatized and non-stigmatized groups.

Unfortunately, research done by Jorm in 2000 established that the average individual's ability to recognize mental disorders is remarkably poor. In a study that had participants listen to a vignette describing a fictional character's experience with depression, it was documented that only 39% of the study sample was able to correctly recognize that the character was suffering from depression. In addition, 11% actually attributed the depressive symptoms to a physical disorder and did not consider the emotional aspects of the character's experience when making their decision about what might be occurring. Jorm proposed that due to the stigma surrounding mental illness it is uncomfortable to acknowledge psychological symptoms. Therefore, the tendency is to fixate on somatic symptoms and seek help for those instead. According to Jorm's philosophy, by saying that the fictional character was experiencing a physical disorder, participants were able to avoid labeling them as mentally ill and therefore avoid the negative attribute.

Because it is important for people to be able to recognize a mental disorder whether for themselves or for the sake of a friend or relative, there is a case to be made for using an education intervention to improve mental health literacy and reduce stigma. However, there are most definitely other uses for this specific type of intervention. In particular, Jorm's findings about treatment perception suggest applicability in altering attitudes about treatment and treatment outcomes as well.

Apparently, the way that professionals in the field view pharmacologic treatment and psychosocial treatment contradict the public's view. Despite the fact that professionals believe that pharmacologic treatments are efficacious for improving mental disorders, the general population holds negative views about pharmacologic treatment. For example, in a study that evaluated attitude change towards psychotherapy and psychotropic drugs for treatment of depression between 1990 and 2001, it was found that negative attitudes towards psychotropic drugs are still present in the 21st century. Despite the fact that by 2001 there were decreases in the percentage of participants who advised against seeking psychotherapy and psychotropic drugs, the percentage that advised against psychotropic drugs was still high. These individuals made up over one third of the sample at 36.1% (Angermeyer & Matschinger, 2005). A research project conducted in England reported a similar observation and also was able to contribute a possible explanation. When the research team asked subjects from the general population to explain their treatment preference, 78% stated that antidepressants are addictive (Priest, Vize, Roberts, & Tylee, 1996).

These opinions however, are not limited to the general public. In a meta-analysis examining patient preference for treatment completed in 2013, only 25% of the patients demonstrated a preference for medication over psychosocial treatment (McHugh, Whitton, Peckham, Welge, & Otto, 2013). Similar to what was observed in the general public in an experiment studying patient preference of depression treatment, it was documented that attributions made about antidepressants were mostly negative. Within the sample of 16 depression patients, concerns about side effects, effectiveness, addiction, dependence, and length of time until treatment completion were most common. Considering that both the general public and patients show overwhelming preference of psychosocial treatments over pharmacologic treatments and have similar misinformed attitudes towards medications, there is a motive to better inform both the non-stigmatized group and the stigmatized group. It is possible that educating people about disorders and treatment could improve their attitudes. With

improved attitudes, it is less likely that upon symptom onset, stigma will make individuals apprehensive about help seeking.

Seeing the magnitude of justification for education anti-stigma interventions for both stigmatized and non-stigmatized populations, it is important to discuss the actual mechanisms present within these interventions. In the case of the non-stigmatized group, in its traditional form, the intervention requires some type of course that participants attend in person. During the course, an instructor – usually a graduate student or professional – gives a presentation where stigma and mental illness is formally defined and common myths about mental illness are challenged by facts. These myths typically address mental illness prevalence, symptoms, typical prognosis, and treatment outcomes for the purpose of having participants see that mental illnesses are more common and less invasive than they may think (Kosyluk et al., 2016). It is believed that by changing what people know about mental illness and showing them that mental disorders are not to be feared, the likelihood that they would be discriminatory towards those with mental illnesses decreases.

When it comes to targeting self-stigma and working within the stigmatized group however, the education intervention has to be modified. In a review focused on self-stigma, a total of six different empirically supported education interventions were identified. Nonetheless, as the authors discovered, conceptual similarities among all of them reveal that there are universal goals when working with stigmatized groups. For example, although the interventions varied in duration, a range of 3-20 sessions, things like psychoeducation, cognitive restructuring, and storytelling appeared throughout all of them (Yanos, Lucksted, Drapalski, Roe, & Lysaker, 2015).

Psychoeducation for patients is similar to the psychoeducation that is applied to the general population in that it challenges myths about mental illness that the patients may perceive as true. Furthermore, it allows the patients to reflect on their own experiences being stigmatized. This method was found in three of the six reported interventions for self-stigma: the Self-Stigma Reduction Program, Ending Self-Stigma, and Narrative Enhancement and Cognitive Therapy (NECT). These intervention programs also made use of cognitive restructuring, which is essentially re-evaluating harmful thought processes. Because how we perceive the world and ourselves frequently determines how we act and make choices, it is important that those perceptions are accurate. For people suffering from mental illnesses and dealing with self-stigma, learning how to adjust their cognitions so that they are accurate is especially important. The last main mechanism presented in the review was storytelling. Storytelling works by encouraging the patients to acknowledge their experience with their mental illness and see how it has changed over time by creating their own narrative. In pointing out all of the events that led up to their disorder onset and realizing that their illness is not evidence of personal weakness, but a response to external stressors, patients are able to be less critical of themselves and reduce self-stigma. According to the review, this method appears in NECT, Coming Out Proud, and Photovoice interventions.

Aside from the psychoeducation, education interventions for stigmatized individuals are fundamentally different than those used for the general public. Specifically, the reflective mechanisms that are incorporated into these interventions require that the patients not learn facts about their illness objectively – as in interventions for non-stigmatized groups – but subjectively, by looking at their own experiences. Consequently, the learning done in these interventions is not facilitated by an instructor but by the patients themselves.

Anti-Stigma Interventions: Contact

Unlike education interventions which rely on the users – with and without a psychological disorder – learning about mental illness, contact interventions utilize interpersonal communication. As seen in a study done in the United Kingdom, it was found that some of the main sources that people turn to for mental health information are personal experience and friends and family members – 43% of the study sample to be exact. The second most common source was determined to be television and cinema representing the responses of 32% of the sample (Wolff, Pathare, Craig, & Leff, 1996). This is interesting because it demonstrates how important personal connection is when it comes to understanding mental illness. If an individual does not have any personal experience, knowing a friend or family member with a current or previous psychological disorder diagnosis is the second best way to receive accurate information. Without that friend or relative however, it appears that people are turning to movies and TV for their information. Media representations of mentally ill individuals can be inaccurate, therefore it is unfortunate that people are using those representations to frame what they think of mental illness. Contact interventions therefore, are useful for the general population.

Usually in a group setting, contact interventions allow individuals without a psychological disorder to learn about mental illness by engaging in a conversation with someone who has or previously had a psychological disorder. This allows them to override what they may have previously learned from movies and television with correct information. Research has shown that having personal experience with someone with a psychological disorder is effective in building positive attitudes about mental illness (Ottewell, 2016). This is the widely accepted reason why contact interventions frequently out-perform other anti-stigma interventions available today.

Even though the conversation between the non-stigmatized individual and the stigmatized individual that occurs in the contact intervention may not be completely personal, it provides a positive experience that acts as reference point. The next time that participants encounter someone with a mental illness, the expectation is that they will be more welcoming and less discriminatory because they will reference their experience with the patient in the contact intervention. This has been empirically confirmed by the success of many programs including the large-scale anti-stigma program, Time to Change. In that specific case, it was observed that having contact with people with mental illnesses was associated with increased positive behavioral intentions (Cook et al., 2014). In other words, participants revealed a lower likelihood of avoiding individuals who have a psychological disorder after completing the program. Interestingly, these effects have been proven to be replicable with video-based contact.

There are some challenges presented with the contact anti-stigma intervention. One is the fact that it may be difficult to find someone who is willing to step forward and identify as having a certain mental illness. After all, the contact intervention is meant to address stigma which could be affecting the patients themselves. Having to be in a position where participants could pass judgment or ask personal questions, it is understandable why someone would not want to volunteer. This is where video-based contact becomes valuable.

Video-based contact, like in-person contact, allows someone with personal experience dealing with a psychological disorder to disclose that experience to an audience. The only difference is that they are doing so remotely by video. Though it has been found that comparably, in-person contact yields

effect sizes that are over two times greater than video-based contact, both lead to significant attitude change (Corrigan & Fong, 2014). For this reason, the latter may still be quite valuable. As it was mentioned above, video-based contact allows someone with personal experience to speak about their mental health without feeling entirely exposed to a group of strangers. In addition, it also allows for widespread dissemination, something that in-person contact cannot accomplish. Where one session of video-based contact can affect thousands of people online, one session of in-person contact can only affect the people that happen to be in the room. This realization has encouraged research in video-based contact and its efficacy in reducing stigmatizing attitudes.

For example, a study was conducted in Hong Kong's secondary schools to test the effects of adding video-based contact to a traditional education anti-stigma intervention about schizophrenia (Chan, Mak, & Law, 2009). Results found that when video-based contact was provided to the participants following the education intervention, stigmatizing attitudes decreased by the end of the intervention than what was observed in the no-video and video-education conditions. In addition, it was found that adding video-based contact after an education intervention decreased social distance and increased knowledge at follow up. This means that not only did the participants in this condition retain the most information but they also became less weary of social interactions with anyone who might have a psychological disorder. As this was also found in the Time to Change study which utilized a traditional contact intervention, there is great appeal in video-based contact.

Anti-Stigma Interventions: Public Campaigns

As defined by the model, the third level of anti-stigma interventions is the structural level. Every day, people are exposed to different messages perpetuated by the government, businesses, and other institutions which influence how they approach the world. When messages are positive, people may adopt more positive views on a given subject whereas when institutions are instilling fear about certain things, people are more likely to be fearful of those things. Given the power that the structural level has at shaping personal opinions, it is unsurprising that interventions have been designed to work at this level to reduce stigma surrounding mental illness. One of the more well-known examples of this is public campaigns.

Public campaigns differ from education and contact interventions in that they are not distributed to individuals directly but indirectly through television advertisements, billboards, web pages etc. This method aims to inform the population about a given issue without requiring that individuals seek to be informed. Because it is unlikely that people from the general population will sign up for a lecture on mental illness or to meet someone with a mental illness, public campaigns have been a favorable choice for years.

Although the research on the efficacy of public campaigns is sparser than the research on education and contact interventions, what does exist is quite interesting. For example, because it is known that describing patients as suffering and incapable could increase the stigma surrounding mental illness, public campaigns have been careful to present mental illness as treatable. This was seen with the Australian social marketing campaign about depression, beyondblue. One of the core messages within beyondblue was that depression can be treated

effectively. Ultimately, this notion encouraged people not to think of depression as a problem with no solution but instead as something that can be overcome. Reports have shown that 44-60% of the population, as determined by numerous samples, were aware of the campaign. In addition, the campaign is believed to have caused greater recognition of depression and increased awareness of the discrimination that individuals with mental illnesses face (Corrigan & Fong, 2014).

At first glance, these results seem to suggest that public campaigns are actually worthwhile and effective in reducing public stigma towards mental illness. However, the literature is somewhat contradictory. When it comes to drug advertisements, which in many ways act as public service announcements, research has suggested that in some cases fixating on the treatability of mental illnesses can actually exaggerate existing public stigma. In a study that evaluated the effects of viewing a television advertisement for Cymbalta, an antidepressant, it was found that people from the general population actually demonstrated worsened stigmatizing attitudes following the advertisement (Corrigan & Fong, 2014). Specifically, participants reported a lower likelihood of helping someone with a mental illness as well as increased perceptions that individuals with mental illnesses are dangerous. However, the sample of participants who actually self-identified as having experience with mental illness demonstrated a decrease in stigmatizing attitudes.

Despite the fact that public campaigns allow people to be subliminally educated, creating a public campaign that is beneficial to everyone is extremely difficult. Research has revealed that methods that induce a decrease in stigma for one group of people may induce an increase in stigma for another group (Corrigan, 2012). This relationship is seen with themes other than just treatability of mental illness. For instance, when considering the target population of the anti-stigma program there is a similar compromise that has to be made. On one hand, anti-stigma programs can be designed to address a specific population of people in a specific area to allow for more drastic attitude change within that community. On the other hand, anti-stigma programs can be generalized, which decreases relatability but allows for distribution to a greater group. Just as in the case with treatability, when choosing who to target with the anti-stigma program, everyone cannot benefit from the intervention at the same time.

Altogether, there are a lot of factors to consider when running a successful public campaign for mental illness stigma. As Corrigan suggests, it is extremely important for those interested in funding these types of projects to define who exactly is meant to benefit from the campaign (2012). Research has shown that it is impossible to target everyone at the same time and to inflict attitude change in everyone at the same time. Therefore, developers have to decide who is going to benefit and who is not going to benefit. Doing so will make it easier to measure the campaign's efficacy later on when it comes time to write reports. Corrigan also suggests that campaign goals be carefully planned so that when the campaign's efficacy is measured, researchers can analyze factors that they actually worked to change. For example, if a research team sought out to study changes in help seeking intentions within a given population following a public campaign, it is important that the campaign include information about treatment. Defining goals and specific themes is a way to accurately measure efficacy at the end of a public campaign. Lastly, Corrigan points out that if public campaigns are going to continually be produced, they ought to use media outlets that are relevant for the year. For instance, he states the number of people that are using radio and television to receive information has been on the decline

whereas the number of users on sites and apps like Twitter has been on the rise. Public campaigns should address this change accordingly.

In comparison to education and contact interventions for stigma, public campaigns have less consistent support and require more consideration when they are being developed. This is especially true given the amount of money, time and number of people that are involved in a public campaign. Nonetheless, with sufficient attention put on goals, media types, and the target audience, they can be made effective.

Video-Based Interventions

It has already been determined that contact interventions can be performed through video effectively and that an important feature of public campaigns is the video advertisements that get put on television or online. However, the utility of video as a medium extend past these two types of interventions. Video-based education interventions, for instance, have been proven effective in catalyzing behavior change and attitude change for things other than just mental illness stigma.

A popular use of video-based education interventions is to encourage healthy behaviors within populations of HIV positive individuals and those at risk. In a study that was conducted in Nigeria among female military personnel, a video-based education intervention was evaluated for its effectiveness in increasing HIV awareness, increasing healthy behaviors, and improving attitudes towards condom use (Essien et al., 2011). Results found that condom use increased at the 3 month follow up in the intervention group, preventative behaviors increased 2-3 times more in the intervention group than in the control group, and there were decreases in alcohol use before sex and number of sexual partners after 6 months. Although the behavior changes that were induced in this study are impressive, the most relevant finding is the improvement in attitudes towards condom use. This result indicates that video-based education interventions are effective in improving attitudes, which is key for addressing mental illness stigma.

In an effort to study how users of these interventions feel about them, a pilot test was conducted in the United States. In this pilot, video conferencing was used to provide HIV positive women in rural or poor urban areas information about how to practice safer sex and be more communicative about their HIV status with sexual partners (Marhefka et al., 2013). Results found that both women in the in-person intervention and the video-based intervention were either very comfortable or completely comfortable with the interventions. In addition, at the focus group following their final session, all of the participants said that they would prefer the video-based intervention over the in-person intervention. It was reported that those in the video group thoroughly enjoyed it and those in the in-person group saw greater potential in the video intervention because they perceived that it would decrease the number of distractions.

In sum, these two projects exemplify that not only do video-based education interventions allow for significant change but they are not perceived as limiting by users. This has been further supported by a recent systematic review on using video-based anti-stigma interventions. In papers that compare in-person contact to video-based contact interventions, it was found that universally, both forms facilitated significant attitude change which aligns with Corrigan and Fong's study from 2014. Likewise, when video-based education interventions were compared to more traditional lecture style education interventions, researchers observed more positive effects within the video-based condition. One paper noted that at the

two-week post-test, participants who had received the video actually retained more knowledge about mental illness in comparison to those who attended the lecture (Janouskova et al., 2017). The inclusion criteria for this systematic review allowed for studies that have more than one video-intervention condition, but only one out of the 23 papers studied video-based contact compared to video-based education.

In this particular study, 244 participants were randomly assigned to either education or contact conditions where which they viewed either an educational video or a contact video (Corrigan et al., 2006). Measures were administered prior and following the video to capture any significant changes in attitudes. It was observed that the contact video had a greater impact on participants by improving pity, empowerment, coercion, and segregation. The education video on the other hand, only had documented improvements in responsibility. In other words, participants recognized that those with mental illnesses are not at fault for their symptoms. When looking at the one-week follow up assessment, the contact video once again out-performed the education video. Even though this project takes on a structure that is uncommon, its results suggest further research.

Future Directions

As this review has shown, video-based education might be more engaging to an audience than an in-person lecture, and interpersonal communication through contact can be achieved by video. However, research that compares the two methods of intervention is scarce. Even though Corrigan's experimental design did make the comparison, without a placebo control condition their results are not as conclusive (2006). This is because it is difficult to measure the true effect of the interventions when the researchers were unable to observe the attitude change that would have occurred without them. Therefore, the literature calls for new research incorporating a video-based control condition whose content does not specifically target mental health stigma reduction. For example, to stay in the realm of health and wellness, a video discussing exercise and diet may be used as the placebo control.

With regard to education interventions, the reviewed literature suggests that key principles of the traditional lecture style intervention should be incorporated (Kosyluk et al., 2016). These include defining the given disorder and addressing myths about symptoms, diagnostic criteria, treatment options, and prevalence. Along the same lines, the contact intervention should incorporate aspects of the in-person intervention (Corrigan & Fong, 2014). Given that the efficacy of contact interventions is thought to stem from the back-and-forth communication between a current or previous patient and someone from the general population, simulating that through video is extremely important. One way to simulate this dialogue is to record a Q&A-style interview where which the diagnosis and treatment are discussed in a more informal manner.

Lastly, it is important to define the disorder that will be featured in the interventions and ensure that it remains consistent between the experimental groups. Literature in this area tends to focus on schizophrenia because symptoms of schizophrenia are more salient than those of other disorders. Therefore, the opportunity for the general population to establish stigmatizing attitudes is great. However, it is important to note that because of how rare a diagnosis of schizophrenia is, any attitude change that occurs in the context of schizophrenia may never be put into practice. For this reason, there is an obvious appeal for focusing on more common disorders such as mood or anxiety disorders. The NIMH reports that in adults, the 1-year prevalence

of mood disorders and anxiety disorders is 9.5% and 18.1% respectively (Kessler, Chiu, Demler, & Walters, 2005). This is far greater than the 1-year prevalence of schizophrenia which is only 1.1% (Regier et al., 1993).

With all of the above in mind, a new project should be designed to test the efficacy of video-based contact and education interventions against a placebo control condition in the context of either a mood or anxiety disorder. Not only would said project allow for a more concrete understanding of how video-based anti-stigma interventions facilitate attitude change but it would also provide participants with an opportunity to undergo attitude change in the context of a mental illness they are more likely to encounter.

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About the Author

Gabrielle is a rising senior at Boston University in the Department of Psychological & Brain Sciences. As part of her directed study, this paper explored her interests in help seeking behaviors and related barriers. It has also informed an independent project to improve stigmatizing attitudes amongst the general public through utilization of video-based interventions. In the future, Gabrielle hopes to continue to improve help seeking behaviors in those with mental illnesses by conducting research, working with nonprofit organizations to redistribute mental health services amongst underserved groups, and serving those groups herself as a clinical psychologist.

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Stigma and the Shift from Asperger's Syndrome to Autism Spectrum Disorder

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Asperger's Syndrome (AS) and Autism Spectrum Disorder (ASD) are developmental disorders that are not widely understood. Until 2013, the DSM-IV classified AS as a distinct disorder, but in the DSM-5, AS was subsumed into the broader category of ASD. This change caused concern in both professionals and those previously diagnosed with AS due to the perceived greater stigma surrounding the diagnosis of ASD compared to AS. Whether or not individuals previously diagnosed with AS will experience greater stigmatization will likely depend on whether the stigma is a result of ASD-consistent behaviors or of the label itself. The present research on AS and ASD indicates that it is the behaviors associated with ASD that lead to stigmatization, and that disclosure of a diagnostic label to others may lead to less stigmatization. However, it is possible that the label change may lead to an increase in self-stigmatization for those previously classified as having AS because the label of AS can be a source of shared identity and community. Because of the paucity of research on this topic, future research should be conducted to explore the impact that this label change has had and continues to have on affected individuals. Additionally, future research should pay particular attention to the experiences of adults with the disorder and the way stigmatization occurs in later stages of life, as most current research is on children and adolescents.

Recently, the official diagnosis for people with Asperger Syndrome (AS) switched—people previously classified as having AS are now classified under the broader umbrella classification of Autism Spectrum Disorder (ASD). This paper aims to explore the impact of this change on peer stigmatization, self-stigmatization, and self-identity more broadly by reviewing the literature on the stigma around both AS and ASD. A review of what AS and ASD are, followed by a general discussion of what stigma is and how it operates, will lead into a discussion of how stigma operates specifically for AS and ASD and how the DSM-5 label change may or may not affect this stigma.

In the discussion of AS *and* ASD, use of the article *and* may be misleading; while AS and ASD were once considered distinct disorders, the fields of psychology and the medical field more broadly now consider them to be the same thing. AS is (or at least was) a developmental disorder affecting the ability to effectively socialize and communicate, while Autism Disorder (AD) was similar but generally considered to be more severe. ASD is a newly created umbrella term for individuals displaying similar deficits in social functioning. AS was classified as a distinct disorder in the DSM-IV (American Psychiatric Association, 2000), but with the shift to the DSM-5 in 2013, AS is now subsumed under the broader category of ASD (Ohan, Ellefson, & Corrigan, 2015). In the DSM-IV, AS was one of many possible diagnoses under the broader category of Pervasive Developmental Disorders, as was AD. In the

transition to the DSM-5, the Neurodevelopmental Work Group--the work group which led the process of categorizing developmental disorders--decided that a single umbrella disorder would improve the consistency of the diagnosis of ASD (American Psychological Association, 2013).

This diagnostic change from AS and AD as distinct diagnoses to a single diagnosis of ASD will be a primary focus of this research paper. It is well-established that there is stigma that accompanies mental health and developmental disorders (Rüsch, Corrigan,Todd, & Bodenhausen, 2010), but there is conflicting evidence about whether or not it is primarily the diagnostic label or the symptoms themselves that lead to this stigma (Phelan & Link, 2004). Stigma is a broad, non-specific category, and each type of stigma (e.g., sexuality stigma, disability stigma, mental health stigma) has unique—but often overlapping—components (Afia, Hassiotis, Strydom, & King, 2012). Stigmatization, which peer stigmatization and self-stigmatization are particular instances of, occurs when there is a combination of labeling, stereotyping, and discrimination, usually from a privileged group to a non-privileged group (Link & Phelan, 2001).

A plethora of research has been conducted on mental health in general. However, many disorders have not been given much attention by researchers. The stigma around AS, AD, and ASD is one example. As of April 30, 2017, a search on the online database PsychInfo of "Asperger's" and "stigma" gives just 14 results, and a search of "Autism" and "stigma" gives just 177 results. Additionally, the vast majority of research on ASD and stigma is about children—filter out those studies, and there are only 62 studies on adults with ASD and stigma.

While this paper focuses on the stigmatization of young adults previously classified as having AS that are now classified as having ASD, there is very little research conducted on this population. Even much of the educational material on ASD is not only primarily describing ASD symptomatology in children, but it is also targeted towards the parents and families of those with ASD, not the patients themselves (What is Autism Spectrum Disorder?, 2016). However, ASD is not a high-mortality disorder, meaning that children with ASD will most likely grow up to be adults with ASD, so it is important to examine the general experiences of ASD and stigmatization not only in childhood but also in adulthood. Because there is not yet a clear body of research on how the stigmatization of individuals with AS and ASD operates, researchers were interested in how the DSM diagnostic label change from AS to ASD could potentially affect (Kite, Gullifer, & Tyson, 2013) and actually did affect (Ohan et al., 2015) the stigmatization of individuals who formerly fell into the category of AS and are now in the category of ASD.

First, it is important to examine what AS is, and how it may or may not differ from ASD, either as a separate disorder or a subset of the disorder with distinct characterizations. Next, it is necessary to examine the stigma of AS, and how it is both similar and different from the stigma of ASD. Finally, an examination of the effect of the DSM label change on stigma for individuals with AS will conclude the literature review. Based on the results, there will be potential implications for both future research and for how individuals previously classified as having AS can best manage the social stigma that comes along with ASD.

Asperger's Syndrome and Autism Spectrum Disorder

Although there are no simple definitions of AS or ASD, the DSM guidelines for diagnosis give a general sense of the characteristics of the disorders. A

diagnosis of AS required qualitative impairment in social interaction; restricted repetitive and stereotyped patterns of behavior, interests, and activities; clinically significant impairment in social, occupational, or other areas of functioning, but no clinically significant general delay in language or cognitive development; and not meeting the criteria for another Pervasive Developmental Disorder (American Psychiatric Association, 2000). A diagnosis of ASD requires persistent deficits in social communication and social interaction across multiple contexts; restricted, repetitive patterns of behavior, interests, or activities; symptoms to have been present in the early developmental period; and that the symptoms cause clinically significant impairment in social, occupational, or other important areas of functioning. ASD is also divided into three levels: Level 1, "Requiring Support," Level 2, "Requiring Substantial Support," and Level 3, "Requiring Very Substantial Support." The DSM-5 also provides guidelines for what behaviors are characteristic of each of these levels, with Level 1 corresponding fairly closely with the previous criterion for AS (American Psychiatric Association, 2013).

In the United States, approximately 1 in 68 children have ASD (Christensen et al., 2016). However, because data is lacking in this area, it is unclear how many people have AS or would have previously been classified as having AS. Some estimates surmise that 1 in 250 to 1 in 500 people have AS (Asperger Profiles: Prevalence, 2016). One reason for this lack of data is that the diagnostic difference between AD and AS was unclear—so unclear that researchers found that across different clinics and treatment centers, the distinct diagnoses were not being applied consistently (American Psychiatric Association, 2013).

This lack of distinction, and the recent shift in diagnostic classification to remove AS altogether, makes a literature review of the stigma around these conditions somewhat difficult. Prior to 2013, some studies refer to people with AS, while others refer to people with Autism who are high-functioning; it is not entirely clear whether or not these two populations are actually one population being referred to by two names. Because of this, in this paper it will sometimes seem as if AS and ASD are referring to two distinct conditions, and sometimes it will seem as if they are being used interchangeably. This is because how the terms are used is dictated by which past research is being reviewed, and how those authors used the terms. However, the way they are being used in each section of the paper will be elucidated as well as possible.

The broader category of ASD in the DSM-5 indicates that the symptoms of ASD fall on a continuum, and that some individuals with ASD show only mild symptoms, while other individuals show much more severe symptoms. However, the diagnostic criterion for the entire spectrum of ASD is the same. People with ASD tend to have communication deficits and may be overly dependent on routines. Some examples of their communication deficits are difficulty responding appropriately in conversation, improperly interpreting nonverbal communication, and difficulty creating and maintaining friendships. One example of the way people with ASD may be overly dependent on routines are that they are highly sensitive to changes in their environments (American Psychiatric Association, 2013).

Despite the fact that the diagnostic criteria for AS and ASD have a lot of overlap, there is evidence that having a separate diagnostic label may have utility for those affected. Mandy (2013) argued in an editorial that the merit of a diagnosis should take into account not only the validity or 'trueness' of the diagnosis, but also its utility or usefulness to a range of stakeholders, including patients, clinicians, and administrators. He argued that the lumping of AS

into ASD makes sense scientifically because the two disorders show many more similarities than differences. However, while clinicians do not distinguish between different subtypes of ASD with any consistency, the DSM-IV distinction had utility for patients despite lacking clinical validity. Mandy (2013) made the argument that there is evidence to suggest that many young people previously diagnosed with AS and their parents are more comfortable with the label of Asperger's. He also argued that many adults with AS take pride in the label, and its distinction from Autism, and posed the question of whether, for that reason, the label will persist despite having been removed from all official diagnostic terminology.

Draaisma (2014) made a similar argument, writing that through the process of discussion of their own diagnoses and behavior, high-functioning people with Autism (or "Aspies") participate in the 'looping effect,' or the interaction between a label and the person who has been labeled. These Aspies both discuss and contest many of the psychiatric problems that modern research on Autism purports them to have. They push back on the idea of AS as a pathological set of limitations and instead purport AS to be more about the benefits that come from their perceived limitations.

Carmack (2014) argues that this difference in perception of AS by the scientific community and by those who have AS is due to a disagreement between people with AS and medical professionals over whether AS is primarily a social identity or primarily a tertiary identity. The social identity aspect of AS involves how individuals with the syndrome define their experiences and their identity as a community. Through this sense of community, they work towards a sense of empowerment by recognizing their differences from people without AS and by viewing those differences through a positive lens. In contrast, a tertiary identity of AS gives medical experts and those with scientific knowledge the sole power to define what AS is and what it is not—the tertiary identity focuses on AS as a pathology and ignores the lived experiences of those with AS. While those with AS experience it as a tertiary identity as well, the primary emphasis is usually placed on the social identity aspect of the syndrome. In contrast, medical professionals often place primary emphasis on the tertiary identity aspect and discount the social identity.

It is easy to see how all of the factors above can create friction, and perhaps a feeling of stigmatization, even for the people who are most directly in contact with AS—those who have it and the medical practitioners who specialize in it. When mental health providers are at odds with the people who have AS about what the condition consists of and how it should be treated, it is not a stretch to think that this could make the people with AS feel stigmatized—they perceive that even their own mental health providers will not listen to, or do not care about, their experiences with the disorder and how it impacts their identities. But this is just within the community of those who have direct contact with AS; how do those who may not know much about the condition perceive it? The next section will focus on the stigmatization of individuals with AS, first through the lens of those who have it and then through the lens of those doing the stigmatizing.

Stigma

Stigmatization occurs when an individual has an attribute or status that has negative social implications that cause others to respond to the individual's behavior with stereotypic judgments, prejudice, or discrimination. Past research has provided conflicting evidence about whether labels or behavior significantly contribute to negative stigmatization of psychiatric disorders, but recent

evidence indicates that labels may contribute more than behaviors to perceptions of danger from people with psychiatric conditions (Phelan & Link, 2004). However, in general, research has found that behaviors have a larger impact on stigmatization than labels (Butler & Gillis, 2011). This is why it is particularly important, as part of examining the stigmatization of AS and ASD in general, to examine to what extent behaviors and what extent preconceived stereotypes attached to a diagnostic label contribute to the stigmatization of AS and ASD.

Asperger's Syndrome and Autism Spectrum Disorder Stigma

Stereotypes of Asperger's Syndrome and Autism Spectrum Disorder

To understand the stigma of AS and ASD, it is important to begin by exploring the stereotypes that may lead to this stigma. To ascertain the most commonly held stereotypes about ASD as well as whether those traits are seen as positive or negative, Wood and Freeth (2016) surveyed university students using two formats—a free-response format, where participants listed the traits they viewed society ascribing to individuals with Autism, and a follow-up study, where participants rated the negative and positive valence of the most frequently occurring traits from the first study. They found that the most frequently reported stereotypic traits were poor social skills, being introverted and withdrawn, poor communication, difficult personality or behavior, poor emotional intelligence, special abilities, high intelligence, awkwardness, obsessiveness, and low intelligence. They also found that eight of the ten most frequently listed traits were rated negatively—significantly more negatively than traits describing people without disabilities.

While these are stereotypes of Autism in general, there are also specific stereotypes of high-functioning Autism, or what previously would have been diagnosed as AS in the DSM-IV. Draaisma (2014) argues that one of the most pervasive stereotypes is that "of an intensely nerdy, socially odd person" (p. 768). However, there is also an overrepresentation of savantism, or the presence of extraordinary or "genius" abilities alongside significant cognitive impairments, in media portrayals of those with Autism, despite it being extremely rare (Draaisma, 2014). This connects to the two positive stereotypic traits that Wood and Freeth (2016) found: special abilities and high intelligence. However, the fact that both high intelligence and low intelligence are stereotypic traits of those with ASD indicates both the diversity of abilities of those with ASD and the diversity of the stereotypes about those with ASD.

Self-reported Perceptions of Stigma by Those on the Spectrum

One source of research on the stigmatization of AS is self-reports by individuals who have it and experience stigmatization first-hand. One study (Shtayermman, 2007) explored levels of peer victimization and the comorbidity of depressive symptomatology, anxiety symptomatology, and level of suicide ideation in a small sample of 10 adolescents and young adults with AS. Results showed that a high proportion of the participants reported experiencing high levels of overt victimization and relational victimization. Interestingly, AS symptomatology scores, which measured the severity of AS symptoms in the participant, were negatively correlated with victimization scores. One possible explanation for this finding is that people who are considered less high functioning are given more attention by teachers and have their needs met, but those who are considered more high functioning are given less attention, opening them up to higher levels of peer

victimization.

Shtayermman (2009) also investigated how adolescents and young adults with AS perceive both their diagnosis and level of stigmatization. Level of stigma was assessed using a self-report online survey with questions such as, "Do you think that having Asperger's syndrome sometimes affects whether people want to be friends with you?" and "Do you think your family treats you differently because you have Asperger's syndrome?" The self-reported level of stigma was not high, but was significantly negatively correlated with severity of AS symptoms. A possible explanation for this is that the participants in this study had relatively low AS symptomatology, so any level of stigma that the participants did experience could be due to the label of having the diagnosis and not as a result of having behavioral symptoms.

In a 2014 study, Linton researched how people with both AS and ASD felt about their clinical diagnoses. The participants ranged in age from 17 to 61, with a mean age of 32. She found that there were both positive and negative outcomes associated with the diagnosis. On the one hand, a majority of the individuals reported a perception that the clinical diagnosis exacerbated stigma. On the other hand, many participants also reported that a clinical diagnosis was helpful in a process of self-discovery and in understanding their life circumstances. However, it was not clear from the self-reports in what way the clinical diagnosis exacerbated stigma.

One potential explanation is that some of the stigma experienced by individuals with AS or ASD may be a result of self-stigma. Self-stigma comprises a negative attitude towards a stigmatized identity and low self-esteem (Rüsch et al., 2010). Rüsch and colleagues (2010) found that implicit self-stigma in people with mental illness significantly impacts quality of life and that self-stigma is very pervasive in those with mental illness. Although AS and ASD are developmental disorders and not mental illnesses, it seems likely that a similar effect would occur for a similarly stigmatized identity.

Afia and colleagues (2012) found that for people of all ages with intellectual disabilities, a lack of awareness of having an intellectual disability prevented many individuals from internalizing stereotypes of intellectual disability and developing self-stigma. However, this is more often found in those with more severe intellectual disabilities—those who are intellectually disabled to the point of not being able to cognize the label of intellectual disability. Particularly for those who have AS and who are on the higher functioning end of ASD, it seems unlikely that they would be unaware of their label and the stigma associated with it; therefore, based on these findings, it seems likely that they would experience at least some level of self-stigma.

Kwok and Yip (2012) further explored this concept in a case study of Tom, an adolescent with mild Autistic features who could be described as having AS. Tom was strongly disturbed by his Autistic label, and became very lost socially, struggling to have friendships with his peers and interact with them outside of a structured classroom setting. However, he focused on forming identity through his high academic performance and cleverness compared to his classmates. Out of the classroom though, he avoided comparison and competition with neurotypical people, even his own sister. This led the researchers to conclude that the labeling effect of mental illness or developmental disorder is strongest when associated with mild pathological behaviors. The label can potentially cause people with the disorder to enter into a self-fulfilling prophecy where they do not compete with neurotypical people, but the label can also cause people to emphasize their relative strengths.

In summary, Shtayermman (2007, 2009) found that individuals with AS do not self-report

high levels of stigmatization, but that those who are considered to have AS but have relatively less symptomology report more peer victimization and a higher perception of stigma, and Linton (2014) found that a clinical diagnosis exacerbated stigma. Rüsch et al. (2010), Afia et al. (2012), and Kwok and Yip (2012) also highlighted the role that self-stigma and the self-fulfilling prophecy may play in the experiences of stigma that people with AS and high-functioning ASD may have. These studies looked at stigmatization of individuals with AS through the lens of those that are at the receiving end of the stigma, but there is another way to look at stigmatization—through the lens of those who are not directly impacted by the stigma of having AS or ASD. Is their perception of the stigma the same? And what factors cause people to stigmatize people with AS or ASD?

Measures of Stigmatization Towards Those on the Spectrum

Looking at how people without ASD perceive the disorder, Butler and Gillis (2011) investigated whether the presence of the label of "Asperger's Disorder," the behavioral characteristics commonly found in individuals with AS, or both, impact the extent to which individuals with AS are stigmatized. They presented participants, who were all undergraduate psychology students, with three vignettes: one of an individual with AS-consistent behavior, one of an individual with mild social deficits, and a control condition of an individual with no behavioral characteristics of AS. Each vignette was either given no label or the subject was described as having AS. Participants then completed the Social Distance Scale, and the researchers used this to create a stigmatization score.

The results showed that regardless of whether the subject was labeled as having AS, there was a significant difference in stigma score between the different vignette conditions. The vignette with AS-consistent behavior was the most stigmatized, followed by the mild impairment condition, and then the no impairment condition. This indicates that it is the behavior, rather than the label, which most impacts stigmatization. Interestingly, in the AS condition the stigma was slightly lower, though not statistically significantly, when there was an AS label than in the no label condition, and in the mild impairment condition the stigma score was higher with a label than with no label. This finding is interesting because it indicates that the label of AS has disparate effects on stigma depending on the severity of the visible symptoms; when there are more visible symptoms the label may lower stigma, but when there are less visible symptoms the label may increase stigma.

Also investigating the effect that a clinical label has on stigma, Brosnan and Mills (2016) conducted a study to research the effect that a diagnostic label of AS or ASD has on the affective responses of college peers towards a student with a clinical diagnosis. Through an online survey, they presented college students in the UK who were not on the Autism spectrum with two vignettes of a male college student displaying behavior consistent with ASD. For one vignette the college student was labeled as having AS, ASD, or Schizophrenia , and for the other vignette there was no clinical diagnosis. After each vignette the participants completed measures assessing positive affect and negative affect.

The results showed that there was no significant difference in affective responses between any of the clinical labels—AS, ASD, and Schizophrenia all prompted affective responses that were not statistically different. However, there was a significant difference in the affective responses between the clinical label group and the typical group; participants reported positive feelings when the subject of the vignette had a clinical label. This seems

to indicate that it is AS and ASD behavior that may be causing stigma and not the label. Furthermore, the label may decrease stigma by giving peers something concrete to attribute the socially unacceptable behavior to. Although it is possible that some of the reported positive affect was due to demand characteristics—participants not wanting to report having negative affect towards a group generally known as being treated badly by peers—this does not necessarily negate the positive impact that disclosing a clinical label could have. It is possible these same demand characteristics could produce the same results outside of an experimental setting; even if peers are still experiencing negative affect, they may hide negative affect towards those with ASD rather than displaying it openly if the diagnosis is widely known.

In summary, Butler and Gillis (2011) found that stigma was primarily a result of ASD-consistent behaviors, with only negligible differences in stigmatization levels between the label of AS, the label of ASD, or no label at all. Additionally, Brosnan and Mills (2016) found that although there were no differences between labels, a clinical label of any type can actually lower stigmatization. However, both studies indicated that ASD-consistent behaviors lead to stigmatization, regardless of the label and even of whether a label is attached at all. Both of these studies were conducted with college students, which provides good support for this effect holding not only for children with ASD but also for adults.

The Effect of the DSM-5 Diagnostic Label Change on Stigma

In addition to research on the stigmatization of AS in general, there has been research conducted to specifically examine the ways in which the diagnostic label change from the DSM-IV, where AS was included as a diagnostic label, to the DSM-5, where the diagnostic label of AS was removed from the DSM and subsumed by the broader diagnostic label of ASD, has affected stigma. One study (Kite et al., 2013) was conducted when the diagnostic change was still just a proposal. The researchers asked health and education professionals about how they perceived the two diagnostic conditions of AS and ASD and what they thought about the proposed diagnostic label change. Another study (Ohan et al., 2015) examined the difference in stigma directed towards an individual when the same behavior was characterized with either the DSM-IV label of AS or the DSM-5 label of ASD.

Kite et al. (2013) found that 90% of surveyed psychologists indicated that they believed there was a difference between AS and ASD. Though these participants reported that a diagnosis of either AS or ASD would have a relatively severe impact on the child and the child's family, they also reported a diagnosis of ASD as having a significantly greater impact on both the child and the child's family than a diagnosis of AS.

The participants who did not agree with the proposed combining of AS and ASD were concerned that the change would have a negative impact on stigmatization and stereotyping because ASD is more severe than AS due to differences in intelligence and cognition, language skills, and behavior patterns. They also reported concerns because the two conditions have different prognoses, including for adult lifestyle and employment independence. The participants who did agree with the proposed change argued that the two conditions are on the same spectrum and that the change would lead to a decrease in confusion around labels for both professionals and other support communities. The fears of the psychologists who were against the change seem to directly reflect the fears of those in the AS community, while the hopes of the psychologists who support the change seem to reflect

the conclusions of the American Psychiatric Association.

These disagreements about the potential effects of the DSM-5 label change overlap with Carmack's (2014) description of the role that social and tertiary health identities play in thinking about AS and ASD stigma. The participants who thought that the label change would have positive outcomes focused on the tertiary identity of AS, or the pathological/diagnostic definition, while the participants who thought that the label change would have negative outcomes focused more on the social identity of AS. This has direct implications for the stigmatization of those previously classified as having AS because the tertiary identity is most likely known only by medical professionals and not the general public. In contrast, it seems safe to assume that the general public (who are often those doing the stigmatizing) likely operate with awareness of only the social identity definition of AS and ASD because they interact with those with AS in social situations, not medical environments.

Ohan et al. (2015) conducted a similar study and investigated whether applying the DSM-5 label of ASD, as opposed to the DSM-IV label of AS, to an individual with Autism symptoms would increase stigma. The participants were all adults, ranging in age from 19 to 74 years, with a mean age of 36 years. The researchers gave participants a vignette of a child who met the criteria for both the DSM-IV diagnostic label of AS and the DSM-5 diagnostic label of ASD and either gave the child in the vignette no diagnosis, an AS label, or an ASD label. After reading the vignette, participants were asked to rate the child on a mental illness stigma scale, which included a stereotypes subscale, a prejudice subscale, and a discrimination subscale. The participants also completed a treatment attitudes measure, which assessed how likely the participant would be to seek help from a mental health professional if they were the child's parent as well as the participants' perception on the effectiveness of different treatments, such as medication and social skills training.

Results showed that participants' stigma ratings were not significantly correlated with the label used; this means that there was no difference in stigma based on the label of AS, ASD, or no label. In addition, they found that the presence of a label, of either AS or ASD, increased the participants' positive treatment attitudes more than when no label was present. There was no difference between the labels of AS or ASD. This suggests that having either label is a good thing, because it increases help-seeking behavior and optimism about the success of treatments (Ohan et al., 2015). This contrasts to the predictions of Kite et al. (2013), who found that mental health professionals feared increased stigma and lower treatment seeking behavior as a result of the diagnostic label change.

Discussion

To recapitulate, the present research on AS and ASD indicates that the behaviors associated with ASD lead to stigmatization and disclosure of a diagnostic label may lead to less stigmatization, because socially inappropriate behaviors are attributable to the disorder rather than bad character. However, researchers have found that the label of AS can be a source of shared identity and community, leading to the possibility that the label change may lead to an increase in self-stigmatization for those previously classified as having AS.

Future Research

While this paper focused on the stigmatization of young adults previously classified as having AS that are now classified as having ASD, there is very little research done on this population. In future research it will be important to examine the general experiences of ASD and the stigmatization of it not

only in childhood, but also in adulthood. Because ASD encompasses a broader clinical population than either AS or AD, researchers will need to pay particular attention to the differences in these experiences between people on different parts of the spectrum.

There should also be future research to investigate the ways in which people view both the label of AS and ASD and the distinct stereotypes that accompany each. This may seem like an odd direction for future research, because at the present moment AS does not exist as a defined clinical pathology. However, though it has been eradicated from the DSM, AS may still hold meaning to the general public and people who self-identify with the label. Research from Carmack (2014), Draaisma (2014), and Mandy (2013) indicates that there is a gap between how the general public and the scientific community view AS as well as between how people within the AS community and the scientific community view it. Because of this, it seems likely that even after its official removal from clinical terminology, the label of AS will live on outside of psychiatry. Now that the change has been implemented, it seems critical to research whether or not this is true.

Implications

Although the label seems to play a part in personal identity, the label of either AS or ASD does not seem to increase stigmatization. The behaviors of individuals with AS or ASD seem to be the primary cause of the stigma, and attaching a label to the behaviors may actually lower stigmatization (Brosnan & Mills, 2016). While Linton (2014) did find that people with ASD *perceive* that a clinical diagnosis exacerbates stigma, this perception has not been supported by empirical research. These findings indicate that even if the stigma surrounding the behaviors associated with AS and ASD does not decrease, in everyday interactions it could be helpful for people with AS and ASD to disclose their clinical diagnosis to people with whom they routinely interact. Rather than increasing stigma, the collective research on the topic seems to indicate that this would give interaction partners something to attribute the socially unacceptable behaviors to, rather than seeing the person with AS or ASD as just being rude or impolite.

This does contradict the view of some in the AS community that AS is just a difference and not a disorder (Draaisma, 2014). However, despite this view, the fact remains that people within any range of ASD do experience deficits in social skills and communication. Although people with ASD often go through therapy to try to minimize these deficits, they will still likely be noticeable to others. The choice is whether or not to give the interaction partner something to which they can attribute these deficits or differences.

Finally, although the distinction between the label of AS and ASD seems to matter for issues of social identity, there does not seem to be a significant difference in the stigma attached to the two labels. Any perceived difference in stigma between the labels by practitioners or people with ASD (Kite et al., 2013) is likely a result of the difference in behaviors displayed by people on different ends of the spectrum, not the labels. Although it remains to be seen if the label change in the DSM-5 will help clarify diagnosis and treatment practices, at least the label change does not appear to have the potential to increase the experience of stigma for those previously classified as having AS.

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About the Author

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Socioeconomic Status and Parental Perceived Social Support in Relation to Health-Related Quality of Life in Youth with Spina Bifida

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Spina bifida (SB) is a congenital birth defect causing a wide variance of physical and intellectual disabilities. The first objective of this study was to examine SES and parental perceived support as predictors of HRQoL among youth with SB. It was hypothesized that lower SES would predict lower youth HRQoL, and higher parental perceived support would predict higher youth HRQOL. The second objective of this study was to examine parental perceived support as a moderator of the association between SES and youth HRQoL. Parental perceived support was hypothesized to serve as a buffer of the negative impact that low SES has on HRQoL. Results indicated significant effects of SES on school, physical, and total HRQoL subscales when covariates were not included. In addition, parental perceptions of social support from family members were significantly associated with Emotional HRQoL in youth with SB. There was a significant interaction between SES and parental perceived support from friends predicting youth Social HRQoL. However, post-hoc simple slope analyses were not significant. This study works to expand the understanding of the roles of SES and parental perceived social support on the HRQoL in children with SB, a population susceptible to poor quality of life due to the physical and cognitive challenges commonly associated with this condition.

Spina bifida (SB) is a congenital birth defect believed to have both genetic and non-genetic causes, including gene mutations and inadequate maternal folic acid consumption, respectively (Copp et al., 2015). Data from a 12-state study from 1997-2007 by the Centers for Disease Control and Prevention (CDC) estimated SB to occur for 3 out of every 10,000 live births (CDC, 2016b). During the early stages of normative embryonic development, the neural tube closes to ultimately form the brain and spinal cord. When that closure fails, it can produce a variety of neural tube defects, such as SB. In SB, the failed closure typically occurs in the thoracic, lumbar, or sacral regions of the spine, which often results in impaired functioning of the legs, bladder, and bowel (Holmbeck, Zebracki, Papadakis, & Driscoll, 2017). In addition, hydrocephalus, a condition in which cerebrospinal fluid is obstructed from properly flowing within and away from the brain, commonly occurs in those with SB and often requires the placement of shunt to aid the drainage of this excess fluid (Copp et al., 2015). Individuals with SB are susceptible to secondary complications, such as bowel and bladder incontinence, urinary tract infections (UTIs), and pressure sores and skin

breakdowns from lack of mobility (Holmbeck et al., 2017).

The effects of SB vary widely across both physical and cognitive domains. The type of SB is identified by the location of the spinal lesion. Types include meningocele, which the CDC attributes to causing "minor disabilities", and spina bifida occulta, which typically produces few disabilities (CDC, 2016a). Myelomeningocele (MM) is the most common and most severe form of SB, causing a moderate to severe physical disability (CDC, 2016a). In addition, MM is associated with brain abnormalities and cognitive impairments (Murray, 2013).

Health-Related Quality of Life

The World Health Organization (WHO) defines quality of life as the perception an individual has regarding their "position in life in the context of the culture and value systems in which they live in relation to their goals, expectations, standards, and concerns" that can be affected by physical and mental health, independence level, and interpersonal relations (WHO, 1997). More specifically, health-related quality of life (HRQoL) is a subjective measurement of an individual's perception of well-being and encompasses the "lived experience" of a health condition (Levi & Drotar, 1998). This construct is an important variable in research that seeks to evaluate a health condition's impact on a child's lifestyle (Sawin, Brei, Buran, & Fastenau, 2002). However, prior research on HRQoL in children with SB is relatively limited and has typically focused on HRQoL around times of medical procedures related to secondary complications of SB (Murray et al., 2014). Past research has indicated that youth with SB have clinically and statistically lower HRQoL when compared to both a non-clinical sample of youth and youth with other chronic health conditions (Murray et al., 2014). Among a sample of youth with hydrocephalus from various medical conditions, participants with MM reported the lowest HRQoL (Kulkarni, Cochrane, McNeely, & Shams, 2008). These studies suggest that youth with SB are at risk for reduced HRQoL; thus, further research is needed to investigate predictors of HRQoL in this population.

Socioeconomic Status and Health-Related Quality of Life

Park, Turnball, and Turnball (2002) report that, among U.S. children and adolescents from ages 3 to 21, 28% of children with disabilities are living below the poverty line, compared to only 16% of typically developing children (Park, Turnball, & Turnball, 2002). The finding that children with disabilities are more likely to live in lower income households provides impetus for exploring the intersection of SES and well being in this population. SES has been found to be inversely correlated with the status of numerous health conditions, including cardiovascular disease, diabetes, gastrointestinal disease, and adverse birth outcomes (Adler & Ostrove, 1999). However, there is a lack of research on the association between SES and outcomes, such as HRQoL, among youth with SB.

A study by Kulkarni and colleagues (2008) in Canada examined social and economic factors associated with HRQoL among children with hydrocephalus, with approximately one third of their sample consisting of youth with SB. Examined factors included family structure, parent education, parent employment status, and annual household income. They found that lower household income and lower parental education attainment were significantly associated with worse HRQoL (Kulkarni et al., 2008). The results of this study illustrate that several SES factors can have a negative effect on HRQoL among youth with SB. In addition, if the

effects of SES can be seen in Canada, a country with a public health care system that is intended to eliminate health disparities by economic class, then one might expect the effect of SES to be greater in the U.S., where no such system exists. More research is needed regarding how SES may put youth with SB at risk for low HRQoL and what protective factors may buffer against the negative effects of low SES.

Parental Perceived Social Support and Youth Health-related Quality of Life

Having a child with a disability demands time and economic resources, and can adversely affect familial relationships, autonomy, and psychological well-being (Seligman & Darling, 1989). Parents of children with disabilities are susceptible to high levels of stress given the demands of a chronic illness and disability (Cousino & Hazen, 2013). In adults, the accumulation of stressors has been linked to higher rates of psychological disorders (Cronin, Becher, Christians, Maher, & Dibb, 2015). Ong and colleagues (2011) conducted a study comparing parenting stress between mothers of children with SB and mothers of typically developing youth (Ong, Norshireen, & Chandran, 2011); their results revealed that mothers of children with SB had significantly higher parenting stress, greater dysfunction in parent-child interactions, and lower general health compared to their control parent counterparts (Ong et al., 2011).

While both being of low SES and having a child with a disability or chronic illness may put parents at risk for increased dysfunction, social support may protect against both sources of stress. The American Psychological Association (APA) identifies "making connections" as one of the ten main ways to build resilience, or adapt well in the face of adversity and stress (APA, 2016). Seligman and Darling (1989) cite a common classification system for social support, which includes three "ecological" levels of support: intimate relationships, friendships, and neighborhood or community support.

One study found that perceived social support significantly predicted well-being in parents of children with physical disabilities (Hung, Wu, Chiang, Wu, & Yeh, 2009). Similar results have been reported in studies of parents of children with intellectual disabilities. Hassall, Rose, and McDonald (2005) found that mothers who perceived higher social support experienced less parenting stress (Hassall et al., 2005). Thus, parental social support has been found to be an important factor for the well-being of parents with children with disabilities. Parental social support is a valuable area of study not only for the potential benefits for that individual, but for the entire family, as relationships external and internal to the immediate family can directly and indirectly affect all members (Dunst, Trivelle, & Deal, 1994).

However, access to social support has been found to be lowest among the most economically needy families (Henly, Danzinger, & Offer, 2005), and lower parental education has been found to be associated with smaller social networks (Ajrouch, Alysia, Blandon, & Antonucci, 2005). Interestingly, social support from peer role models has been shown to have positive medical benefits for youth of low SES, but the benefits were not found for youth of higher SES (Chen, Lee, Cavey, & Ho, 2013). Thus, it may be that social support has a greater impact on those of lower SES when such support is present. There is no research on how social support experienced by parents moderates associations between SES and child outcomes, but research in other related domains suggests that parental social support may benefit youth from low SES to a greater degree than youth from high SES due to the higher level of stress found among low SES families.

Indeed, improving parental well-being through social support systems has a documented association with positive child psychological outcomes (El-Dardiry, Dimitrakaki, Tzavara, Ravens- Sieberer, & Tountas, 2012), including all domains of HRQoL (Kulkarni et al., 2008). A meta-analysis that examined the psychological adjustment of parents of children with SB found that parental adjustment enhanced their ability to complete tasks related to SB care, including coping with stress associated with the condition (Vernaes, Janssens, Bosman, & Gerris, 2005). Conversely, Ong and colleagues report that unresolved stress in parents with chronic stress can have negative implications for their child's future adjustment (Ong et al., 2011; Friedman, Holmbeck, Jandasek, Zukerman, & Abad, 2004). Finally, the SB literature lacks a close examination of parental social support and the potential benefits it may have for children living with SB.

The Current Study

Youth with SB appear to be at a high risk for poor HRQoL. However, literature on contributing factors of poor HRQoL is lacking. As previously stated, SB can cause a wide variety of cognitive and physical impairments. This study used child intelligence (IQ) and Gross Motor Function (GMF) scores to measure cognitive functioning and level of physical impairment in the participants, respectively. Subsequently, these constructs were controlled for in order to draw conclusions about the SB population as a whole. In doing so, this study aimed to understand the relationships among HRQoL, SES, and parent support separate from the cognitive and physical impairments of an individual participant. Current research suggests that SES may be a predictor of HRQoL; specifically, lower SES may put youth at risk for poor HRQoL (Kulkarni et al., 2008). However, there may be factors that serve to protect against the negative effects of low SES. Parents of low SES face added stressors that may impact them and their child. In families of youth with SB, the combination of added stress from raising a child with a disability and the financial strain and lack of resources that are present in lower SES families may impact youth outcomes, such as lowering a child's HRQoL. However, SES as it specifically relates to HRQoL in youth with SB remains largely unexplored. The importance of parental social support for families of youth with disabilities makes this a likely positive predictor of child HRQoL (Kulkarni et al., 2008). In line with previous research, it may also be that parental perceived social support moderates the association between SES and HRQoL in youth with SB.

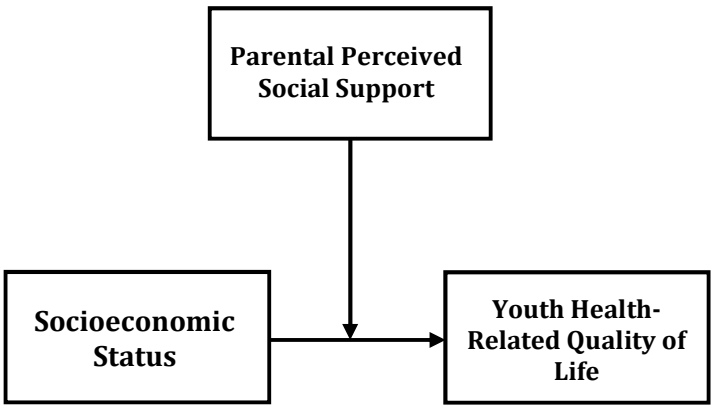

Figure 1. *Proposed Model of Parental Perceived Social Support as a Moderator of the Association Between Socioeconomic Status and Youth Health-Related Quality of Life*

The current study seeks to expand the understanding of HRQoL in children with SB, and the potential roles of SES and parental perceived support. Specifically, the first objective of this study is to examine SES (Objective 1A) and parental perceived support (Objective 1B) as predictors of HRQoL among youth with SB. It is hypothesized that lower SES will predict lower youth HRQoL, and

higher parental perceived support will predict higher youth HRQOL. The second objective (Objective 2) of this study is to examine parental perceived support as a moderator of the association between SES and youth HRQoL (Figure 1). It is hypothesized that parental perceived support will serve as a buffer of the negative impact that low SES has on HRQoL, in that higher levels of parental perceived support will be more beneficial for those of low SES compared to those of high SES. Though expected to have a greater impact in families of lower SES, the positive effects of high parental social support on child reported HRQoL is expected to occur at all levels of SES.

Method

Participants

This study's sample was part of a larger longitudinal study investigating psychosocial, family, and social functioning among youth with SB from childhood to young adulthood (Devine et al., 2012). Participants were youth with SB and their families who were recruited from four Midwestern hospitals and a statewide SB association. Families were approached about participating during regularly scheduled clinic visits and/or were sent recruitment letters. After completing a screening from a research assistant, interested families were asked to participate if they met the following criteria: (1) the child was between the ages 8 and 15, (2) the child had a diagnosis of SB, (3) the child was able to speak and read English or Spanish, (4) at least one caregiver was involved, and (5) the family lived within 300 miles of the research lab.

Of the 246 families approached for participation, 163 agreed to participate. However, 21 families were unable to be contacted later, and 2 families were discovered not to meet eligibility criteria, leading to a final sample of 140 families. In comparison to all other racial/ethnic groups, the prevalence of SB is highest in Hispanic groups (Boulet et al., 2008). Thus, Hispanic families were oversampled in the larger study to better understand SB in this population. Of the families who declined to participate, youth did not differ from participants with respect to SB type, presence of shunt, or occurrences of shunt infections (*p's* > .05). Of participating youth with SB, 53.6% were female and the mean age was 11.43 years. See Table 1 for more demographic and condition-related information on the sample.

Table 1.
Demographic and Condition Related Information

Characteristic	*n*(%) or *M*(SD)
Age	*11.43*(2.46)
Gender	
Male	*65*(46.4%)
Female	*75*(53.6%)
Race/Ethnicity	
Caucasian	*74*(52.9%)
African-American/Black	*19*(13.6%)
Hispanic	*39*(27.9%)
Asian	*2*(1.4%)
Multi-racial	*6*(4.3%)
SB Type	
Myelomeningocele	*122*(87.1%)
Lipomeningocele	*10*(7.1%)
Other	*8*(5.7%)
Shunt Status	
Yes	*110*(76.8%)
No	*30*(21.4%)
GMF	
1 (few impairments)	*18*(12.9%)
2	*34*(24.3%)
3	*30*(21.4%)
4 (severe impairments)	*53*(37.9%)
Missing	*5*(3.6%)
WASI (IQ)	*85.68*(19.68)

Procedure

Institutional Review Board (IRB) approval was obtained from participating hospitals and the home university of the larger longitudinal study. For data

collection, two trained members from the research team visited participating families in their homes every two years for the completion of questionnaires, neuropsychological testing, interviews, and video recordings of family and peer interactions. Releases of information forms were also obtained to collect data from medical charts, health care professionals, and teachers. Questionnaires were available in Spanish. All families were compensated $150 upon completion of home visits and questionnaires. The present study utilized child and mother questionnaire data from the first time point.

Measures

Demographic Information and SES. SES was measured using the Hollingshead Four Factor Index (Hollingshead, 1975). Both parents' occupations and education levels were assigned scores and combined to create a total SES score for each family. In cases of a one-parent household, that individual's occupation and education were used. A higher score on the Hollingshead Four Factor Index indicates higher SES.

Child Intelligence. Child intelligence (IQ) was measured using the vocabulary and matrix reasoning subtests of the Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). The vocabulary subtest measures expressive vocabulary, verbal knowledge, and fund of information. The matrix reasoning subtest measures nonverbal fluid reasoning. The WASI has been found to be highly reliable for children ages 6-16 years (Wechsler, 1999).

Medical Information. SB type (i.e., myelomeningocele, lipomeningocele, or other), SB lesion level (i.e., thoracic, lumbar, or sacral), and shunt status (yes/no) were collected from medical records after obtaining parental release of information. If no medical records were available, medical data were gathered from the parent questionnaires.

Gross motor functioning (GMF) was coded using the Gross Motor Function Classification System for SB (Wilson, Washington, Engel, Ciol, & Jensen, 2006). This system was designed to capture clinical distinctions in GMF with scores ranging from Level I to Level V, indicating minimal limitations in gross motor functioning to the highest degree of motor dysfunction, respectively. Coders were trained using actual study cases and all achieved pre-determined standards for inter-rater reliability (> 90% agreement rate). Following training, a single coder provided motor classifications for each participant. The original GMFCS scale demonstrated good inter-rater agreement (Kappa = .75 for children 2 years and older; Palisano et al., 1997).

Child Health-Related Quality of Life. Child HRQoL was assessed using self-report data on the Pediatric Quality of Life Inventory Version 4.0 Generic Core Scales (PedsQL; Varni, Seid, & Kurtin, 2001). The PedQL consists of 23 questions across four domains: physical, emotional, social, and school functioning. With the prompt "In the past one month, how much of a problem has this been for you…", an example item from the physical functioning scale is "It is hard for me to run." An example from the emotional functioning scale is "I feel sad or blue" and an example from the social functioning subscale is "It is hard to keep up when I play with other kids." Finally, a sample question from the school functioning scale is "It is hard to pay attention in class." Questions were answered on a 5-point scale from 0 "never a problem" to 4 "always a problem." The PedQL demonstrates good overall internal consistency (α = .80). While standard scores are used when comparing HRQoL to typically-developing or control samples (e.g., Murray et al., 2014), mean scores were used in the current study. In addition to each subscale being analyzed individually (i.e., physical, emotional, social, and school), a total HRQoL scale included all four subscales, and a

psychosocial HRQoL scale included all but the physical domain.

Parental Perceived Social Support. The measures chosen to examine this construct mirror the theoretical framework of Seligman and Darling's (1989) "ecological" levels of social support. Parental perceived social support was assessed using two versions of Perceived Social Support (PSS) scale: one measuring perceived social support from friends (PSS-FR) and the other measuring perceived social support from family members (PSS-FA). Both measures contain 20 items that reflect emotional, informational, feedback, and reciprocal supports and are answered with "Yes", "No", or "Don't Know". A sample item from the PSS-FR is "My friends enjoy hearing about what I think." A sample item from the PSS-FA is "My family is sensitive to my personal needs." Tested among college-aged populations, both PSS scales have been found to have high internal consistency ($\alpha = .90$ for PSS-FA and $\alpha = .88$ for PSS-FR; Procidano & Heller, 1983).

Parental perceived social support from the community was assessed using the Social and Community Support Questionnaire (SCSQ), derived from the ACCESS Needs Assessment for Parents Scale (Kennedy et al., 1998). While the original measure includes 75 SB-specific questions, the current measure was reduced to 13 items to reduce overall participant burden and 3 new items were developed specifically for the larger longitudinal study to capture developmental changes. A sample item includes "Adequate state and federal funds." Respondents answer if the item is important to them ("Yes"/"No") and subsequently rate on a 5-point scale the extent to which this item is being taken care of for their family (1= "Not taken care of at all" to 5= "Well taken care of").

Statistical Analyses

Objective 1. Cross-sectional hierarchical regression analyses were conducted to determine whether SES predicted youth HRQoL, while controlling for IQ and GMF (Objective 1A). Cross-sectional hierarchical regression analyses were also conducted to determine whether the three types of parental perceived social support (i.e., from family, friends, and the community), predicted youth HRQoL, while controlling for IQ and GMF (Objective 1B). Assuming a power of .80, and an alpha of .05, a sample of 34 is required to detect large effect sizes ($R^2 = .35$) and a sample of 76 is required to detect medium effect sizes ($R^2 = .15$) for analyses with three predictors (Cohen, 1992). Thus, the current study had enough power to detect medium to large effect sizes.

Objective 2. Hierarchical regression analyses testing moderation effects were conducted to determine if the effects of SES on youth HRQoL varied significantly as a function of parental perceived support (family support, friend support, community support). Such analyses were based on methods outlined by Aiken and West (1991), and Holmbeck (1997). Specifically, a separate regression analysis was conducted for each perceived parental support moderator. Variables were entered simultaneously within the following steps: (1) IQ, GMF, (2) SES, parental perceived social support, and (3) SES X parental perceived support interaction. Assuming a power of .80, and an alpha of .05, a sample of 38 is required to detect large effect sizes ($R^2 = .35$) and a sample size of 84 is required to detect medium effect sizes ($R^2 = .15$) for analyses with 5 predictors (Cohen, 1992). Thus, the current study had enough power to detect medium to large effect sizes.

Results

Descriptive information on study variables can be found in Table 2. Preliminary analyses tested correlations among study variables (see Table 3). Results revealed SES to be significantly positively correlated with IQ, physical HRQoL, school HRQoL, and total HRQoL, and significantly

negatively correlated with community support. Parental perceived social support from family was significantly positively correlated with parents' social support from friends and with the emotional HRQoL of youth.

Table 2.
Descriptive Statistics for Study Variables

Variable	*M*(SD)	Range
Hollingshead SES	*39.44*(15.90)	8.0-66.0
HRQoL		
Physical	*2.35*(0.86)	0.0-4.0
Emotional	*2.59*(0.81)	0.6-4.0
Social	*2.66*(0.90)	0.0-4.0
School	*2.30*(0.88)	0.0-4.0
Total Psychosocial	*2.51*(0.67)	0.93-4.0
Total	*2.50*(0.61)	0.91-3.96
Parental Social Support		
Family (PSS-FA)	*20.93*(4.11)	11.0-36.0
Friends (PSS-FR)	*20.76*(4.33)	10.0-35.0
Community (SCSQ)	*3.37*(0.85)	1.0-5.0

Note. SES = socioeconomic status. HRQoL = health-related quality of life. The Total score includes all four HRQoL subscales, while the Total-Psychosocial score excludes the Physical subscale.

Objective 1. Objective 1A of this study was to examine SES as a predictor of child HRQoL, while controlling for IQ and GMF. Results revealed that SES did not significantly predict any type of child HRQoL when controlling for IQ and GMF. However, when covariates were not included, greater SES predicted greater school HRQoL ($p < .05$),greater physical HRQoL ($p < .01$), and greater total HRQoL ($p < .05$).

Objective 1B was to examine perceived parental support from family, friends, and the community as predictors of child HRQoL, while controlling for IQ and GMF. Results revealed that greater perceived parental support from family was predictive of greater emotional HRQoL ($p < .05$). This finding was also significant when IQ and GMF were not controlled for ($p < .05$). All results for Objective 1A and 1B can be found in Table 4.

Objective 2. The second objective of this study was to examine parental perceived support as a moderator of the association between SES and youth HRQoL, when controlling for IQ and GMF. It was hypothesized that parental perceived support would buffer the negative impact of low SES on HRQoL, such that higher levels of parental perceived support would be more beneficial for those of low SES compared to those of high SES. This hypothesis was partially supported as results revealed a significant interaction between SES and parental friend support when predicting youth social HRQoL ($p < .05$; Table 5). table However, post-hoc simple slope regression analyses revealed no significant moderation effects for either youth with *high* parental friend support ($p = .12$) or those with *low* parental friend support ($p = .21$). This suggests that while the associations between SES and youth Social HRQoL significantly differs between those with *high* parental friend support and those with *low* parental friend support (i.e., as evidenced by the significant interaction), changes in SES within each group are not significantly associated with youth Social HRQoL (i.e., as evidenced by the non-significant post-hoc simple slopes; Figure 2).

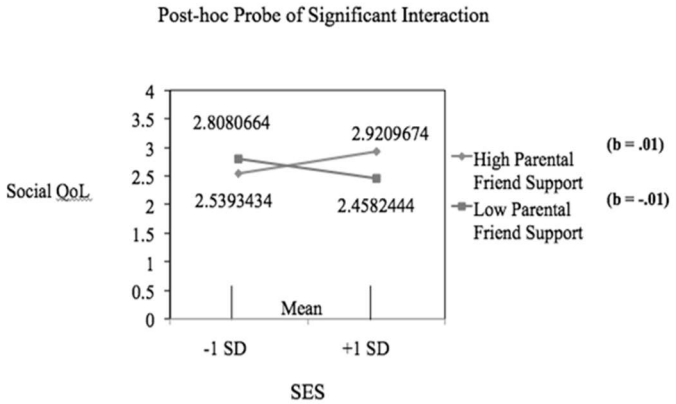

Figure 2. *Post-hoc Probe of Significant Interaction Between Parental Friend Support Moderating Socioeconomic Status Effects on Youth Social Health-Related Quality of Life*
Note. SES = socioeconomic status. HRQoL = health-related quality of life.
Note. Bars within figure indicate standard error

Table 4.
Significant Results of SES and Parental Perceived Social Support as Predictors of Youth HRQoL

	Youth HRQoL									
Independent Variable	Social		Emotional		School		Physical		Total	
	β	*t*	β	*t*	β	*t*	β	*t*	β	*t*
SES	.07^{ns}	.62	.07	.66	.19*	2.03	.26*	2.88	.23*	2.53
Social Support										
Friends	-.04^{ns}	-.45	.02^{ns}	.15	-.13^{ns}	-1.45	.05^{ns}	.51	-.03^{ns}	-.34
Family	-.04^{ns}	-.44	.21*	2.24	.08^{ns}	.88	-.01^{ns}	-.18	.06^{ns}	.64
Community	-.06^{ns}	-.61	.15^{ns}	1.48	.003^{ns}	.03	.03^{ns}	.29	.04^{ns}	.43

Note. SES = socioeconomic status. HRQoL = health-related quality of life. Analyses controlled for both for IQ (as measured by WASI estimated full-scale) and GMF (gross motor function). Bolded results did not include covariates. *p < .05, ** p < .01, ***p <.001, ^{ns} not significant.

Table 5.
Interactions Between SES and Parental Perceived Social Support as Predictors of Youth HRQoL

	Youth HRQOL									
Independent Variable	Social		Emotional		School		Physical		Total	
	β	*t*	β	*t*	β	*t*	β	*t*	β	*t*
SES X Friend Support	.23*	2.07	-.19^{ns}	-1.67	-.07^{ns}	-.61	-.08^{ns}	-.78	-.04^{ns}	-.38
SES X Family Support	.05^{ns}	.48	-.003^{ns}	-.03	.01^{ns}	.06	.02^{ns}	.22	.03^{ns}	.29
SES X Community Support	.21^{ns}	1.97	.08^{ns}	.78	.17^{ns}	1.67	-.03^{ns}	-.28	.13^{ns}	1.27

Note. Parental perceived social support is conceptualized as the moderator between the association of SES and HRQoL. Interactions were only tested for main effects that were found in Objective 1 (see Table 3). SES = socioeconomic status. HRQoL = health-related quality of life. Analyses controlled for both for IQ (as measured by WASI estimated full-scale) and GMF (gross motor function). *p < .05, ** p < .01, ***p <.001, ^{ns} not significant

Discussion

The purpose of this study was to examine the effect of SES and parental perceived social support on HRQoL in youth with SB, a population susceptible to poor quality of life due to the physical and cognitive challenges that may be associated with this condition. In addition, parental perceived social support was evaluated as a potential protective factor to determine if the association between SES on

HRQoL was moderated by parental perceived social support.

As previously stated, SES did not predict youth HRQoL when controlling for IQ and GMF. However, when those controls were not included, lower SES predicted lower school, physical, and total HRQoL. These findings are consistent with past literature that found lower SES to be associated with lower HRQoL (Kulkarni et al., 2008), and suggest that youth from families of low SES may have lower HRQoL in these domains, possibly due to fewer resources in the home, community, and at school (Aikens & Barbarin, 2008). Low SES may also be correlated to lower HRQoL in these domains because of neighborhood factors, such as unsafe recreation areas, or less access to items needed for daily living with this condition. However, controlling for IQ and GMF is an important addition to the analyses due to the variation of these two constructs among people with SB, including participants in our sample. Importantly, SES and IQ are significantly positively correlated in our sample (see Table 3), meaning that those with higher SES tend have higher IQs. Since SES does not predict youth HRQoL when controlling for IQ and GMF, this suggests that these two variables may play a greater role in determining a child's HRQoL than does his/her family's SES. The implication of this finding is that the severity of physical and cognitive impairments from the condition can be expected to have a high impact on HRQoL, regardless of SES. This finding is important because it highlights the variance of cognitive and physical impairments in this population and can direct focus of medical providers toward improving the daily lives of youth with higher levels of condition severity. For example, this finding may provide impetus for more research on and greater access to high quality products for ambulation or devices to assist with daily living for youth whose GMF and IQ are lowest.

Table 3.

Correlations among Study Variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. SES	--	.476**	-.157	.258**	.056	.089	.185*	.142	.229*	-.061	-.004	-.209*
2. IQ		--	-.204*	.242**	.023	.108	.279**	.179	.238**	.016	.036	-.117
3. GMF			--	-.347**	-.003	-.023	-.094	-.051	-.196*	.134	-.025	.026
Youth HRQoL												
4. Physical				--	.162	.339**	.360**	.374**	.743**	-.061	.058	-.010
5. Emotional					--	.427**	.387**	.758**	.623**	.207*	.018	.133
6. Social						--	.424**	.802**	.744**	-.049	-.039	-.062
7. School							--	.779**	.726**	.077	-.126	-.024
8. Psychosocial Total								--	.897**	.094	-.063	.020
9. Total									--	.034	-.022	.012
Parental Perceived Social Support												
10. Family Support										--	.447**	.120
11. Friend Support											--	-.015
12. Community Support												--

Note. SES = socioeconomic status. IQ = intelligence quotient (as measured by WASI estimated full-scale). GMF = gross motor function. HRQoL = health related quality of life. For Youth HRQoL, "Total" includes all four subscales, while "Psychosocial Total" does not include the Physical subscale. *p<0.05, **p<0.01

Parental social support from family was found to be predictive of youth emotional HRQoL, when controlling for IQ and GMF. These results partially supported the hypothesis that higher parental support would predict higher HRQoL, and highlight the impact of parental socialization on youth emotional development. This finding suggests that parents who have greater support from their family may have children who are better emotionally adjusted. Previously cited literature corroborates this result, as social support used to improve parental well-being is associated with more positive child psychological outcomes (El-Dardiry et al., 2012). Though not all aspects of youth HRQoL are impacted by parental support, this finding implies that relationships inside the home can impact the emotional development of their children. This finding provides grounds for more publically funded support groups for parents of youth with SB to improve parental relations. Subsequently, higher emotional HRQoL of youth with spina bifida could be important for improving the family's attitude towards spina bifida as well as the youth's acceptance of his or her health condition and tolerance of tasks necessary for care.

In addition, a significant interaction was found between SES and parental perceived support from friends. However, the post-hoc simple slope analyses were not significant, meaning that within the group of parents with high levels of support and within the group of parents with low levels of support, changes in SES were not significantly associated with changes in youth HRQoL. These findings were surprising given past literature suggesting that social support has a positive impact on economically disadvantaged parents and families (Cronin, 2015). Regardless of parents experiencing high friend support or low friend support, SES was not significantly related to HRQoL within each group. It could be that the present study is underpowered to detect these effects. Further research with larger samples may find more evidence of this association.

The strengths of this study include a relatively large sample size of 140 participating youth and their parents, allowing for the detection of medium to large effects. In addition, the participants varied in age (i.e., 8 to 15 years), allowing us to understand relation between study variables among school-aged children and early adolescents. Finally, given the range of cognitive and physical functioning found in youth with SB, this study controlled for IQ and GMF, which ensure a purer understanding of the effects among the variables of interest.

While the larger study from which these data were collected has a longitudinal design; the current study only utilized data from the first time point of data collection. Therefore, the current study is limited by its cross-sectional design, as effects are not shown throughout development for individual participants. In addition, most information for this study was extracted from self-report questionnaires. Self-report data are subject to confounds such as demand characteristics or evaluation apprehension (Pelham & Blanton, 2013). Among the self-report data available for the study, only mother data was used for measuring parental perceived social support. Finally, the SES variable presents unique challenges. While this study utilized a composite of occupational prestige and educational attainment to determine SES, other pediatric researchers argue broader sociodemographic factors should be considered (e.g., income, family structure, insurance status, wealth, assets, neighborhood characteristics; Cheng, Goodman, & The Committee on Pediatric Research, 2015).

Based on the results of this study, health care providers might assess the social support systems that

parents have within the home as a way of improving the emotional HRQoL of youth with SB. In addition, future research can continue to build upon these findings. For example, a more comprehensive measure of SES may be utilized to more accurately determine if it has an effect on HRQoL in this population of youth and their families. Utilizing data from both parents, rather than only maternal reports, may also be a valuable avenue for future research for a more holistic overview of a family's social supports. Gender may be another variable to consider, as female adolescents have been shown to report worse psychological health compared to males (Geckova et al., 2003). Finally, a longitudinal, rather than cross-sectional, examination of SES, HRQoL, and the moderating protective factors may provide valuable insight into how associations among these variables unfold over the course of adolescence in youth with SB.

About the Author

Hailing from Cleveland, OH, Natalie graduated from Loyola University Chicago ('17) with a Bachelor of Science degree in Psychology. She minored in Dance and Business Administration and also completed Loyola's Interdisciplinary Honors program. Her research article was completed as an undergraduate honors thesis while working as a research assistant in the Chicago Healthy Adolescent Transition Study (CHATS) Lab under the direction of Grayson N. Holmbeck, PhD, with additional mentorship from Jaclyn L. Papadakis, PhD. As Natalie moves beyond undergraduate studies, she plans to pursue Masters degrees in Social Work and Public Health and may some day continue to a PhD in Social Work, with the goal to utilizing academic pursuits to improve the lives of society's vulnerable populations. Outside of school and work, Natalie enjoys nothing more than a sipping a cup of coffee with a friend, reading a book, doing yoga, or attending a dance class.

Originally from Freeport, IL, Jaclyn recently earned her doctoral degree from Loyola University Chicago's ('18) Clinical Psychology graduate program, where she completed her predoctoral clinical internship at Lurie Children's Hospital of Chicago. Jaclyn completed her undergraduate studies in Psychology and Human Services in 2010, as well as her Master of Arts in Clinical Psychology in 2015. Her research interests center around the psychosocial functioning and family functioning in families of children with chronic illnesses and the impact of socioeconomic and cultural factors on child health. Jaclyn aims to be a pediatric psychologist in an academic medical center, doing both clinical and research work. In Jaclyn's free time, she enjoys running, playing sports, watching movies, going to dog parks, and spending time with family and friends.

Grayson Holmbeck, PhD, is a professor of Psychology at Loyola University Chicago, where he also serves as the Director of Clinical Training for graduate studies. He completed undergraduate coursework at Brown University ('80) and earned his doctoral degree in Clinical Psychology from Virginia Commonwealth University ('87). Grayson is the Principal Investigator (PI) for the Chicago Healthy Adolescent Transition Study (CHATS), a longitudinal study examining the psychosocial effects of spina bifida on adolescent development and family functioning. He is also PI of a study examining the effectiveness of a camp-based independence program for children, adolescents, and young adults with spina bifida. Additionally, Grayson has served as the editor of the Journal of Pediatric Psychology since 2013. The father of two, Grayson enjoys playing tennis, listening to music, and traveling in his free time.

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Emotion Regulation and The Disappointing Gift Task: Implications for Understanding Children's Development

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Understanding predictors of maladjustment outcomes and psychopathology necessitates an assessment of emotion regulation (ER) in childhood. ER development has implications for social competence, externalizing and internalizing behaviors, and psychopathology. This construct has been assessed with the Disappointing Gift Task (DGT), with variations in methodology among studies. The DGT has been used to evaluate the relationship between children's ER and parenting, parental ER, social competence, and externalizing and internalizing behaviors. It has also been used to illustrate differences in children's ER that arise from age, gender, and cultural factors. This literature review will examine these studies and discuss both a broad and narrow scope of findings related to ER generally and the DGT specifically, an analysis of the DGT's results and relevancy to ER literature, and implications for future research. Future research related to the DGT should include the use of longitudinal data to assess both the stability and predictability of the methodology used with this paradigm and incorporation of more cross-cultural data.

As the field of developmental psychopathology continues to illuminate the development of maladaptive behavior in children, emotion regulation (ER) has remained an indicator of healthy and expected development because of its salience in early childhood. Prior literature has indicated that young children with poor emotion regulation are at risk for serious and persistent adjustment problems (Southam-Gerow & Kendall, 2002), whereas adequate levels of emotion regulation have been identified as important protective factors (Blandon, Calkins, Grimm, Keane, & O'Brien, 2010; Kliewer et al., 2004). Nonetheless, a continuing problem is the creation of a definition for this construct to which all researchers can agree and to which all relevant paradigms are applicable. The construct lacks a single definition and has been subject to a lack of clarity due to variation of how it has been operationalized (Cole, Martin, & Dennis, 2004; Cole, Michel, & Teti, 1994). In young children, ER has been assessed using behavioral tasks, adult ratings of the child's behavior, and child self-reports (Feng, Shaw, & Moilanen, 2011; Hessler & Fainsilber, 2007; Schwartz & Proctor, 2000).

Most investigators use the definitions proposed by Thompson and Cole. Thompson (1994) proposed that ER "consists of the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions…to accomplish one's goal" (p. 27-28) and is a "conceptual rubric that encompasses a variety of behavioral strategies" (p. 41) that "enlist emotion" (p.

25) for support. Paraphrasing Cole et al. (2004), Raver (2004) has described emotional self-regulation as "the dynamic interaction of multiple behavioral, psychophysiological, attentional, and affective systems that allow young children to participate effectively in their social worlds" (p. 350). Thus, ER can be viewed as a framework comprising both affective and behavioral regulation.

As a result of the variation in definition, there is also variation in defining adaptive/appropriate regulation and maladaptive/inappropriate regulation. However, most researchers agree that describing children's ER as adaptive or maladaptive is significantly dependent on context and outcomes. Cole et al. described ER as "an ongoing process of the individual's emotion patterns in relation to moment-by-moment contextual demands" (1994, p. 74) and emphasized the importance of "the fact that emotions must be understood in context" (2004, p. 320) since "context provides the frame of reference from" which even emotion dysregulation can be defined (1994, p. 84). Furthermore, past literature has suggested that certain ER strategies, such as reappraisal and constructive coping, are considered adaptive because they are associated with better psychological functioning or positive outcomes (Betts, Gullone, & Allen, 2009; Gross & John, 2003; London, 1997). An example of such outcomes would be less externalizing or internalizing symptoms or behaviors, and many studies examining children's ER have assessed the relationship between ER and these constructs. Externalizing behavior problems are a "grouping of behavior problems that are manifested in children's outward behavior and reflect the child negatively acting on the *external* environment" and include delinquency, aggression, disruptive behavior, and hyperactivity (Liu, 2004, p. 93). Conversely, internalizing behavior problems are defined as "problems that more centrally affect the child's internal psychological environment rather than the external world" and include anxiety, depression, and withdrawn and inhibited behaviors (Liu, 2004, p. 93).

One operationalization of ER has been the Disappointing Gift Task (DGT), which was first conceptualized by Saarni (1984) and Cole (1986). The DGT or a modified version of this paradigm has been used to assess children's ER in numerous studies (Bohnert, Crnic, & Lim, 2003; Garrett-Peters & Fox, 2007; McDowell, O'Neil, & Parke, 2000). In this review, I will focus on both ER and the DGT since it is important to first examine the research dedicated to ER to discuss the DGT. Specifically, this review will discuss ER and its relationship with both normative and non-normative development, the DGT and its contributions toward understanding healthy and maladaptive development, limitations in the research done with the DGT, and suggestions for future research.

The Importance of ER in Normative Development

ER is important for children's normative development because it is considered an inherent component of their growth during their early years. However, it has also been identified as a key adaptive challenge (Graziano, Reavis, Keane, & Calkins, 2007; Izard et al., 2011). During the first few years of their lives, children's ER is largely dependent on parents' caregiving behaviors and affective responses to them (Cole et al. 1994; Izard et al., 2011; Kim & Cicchetti, 2010). According to Cole et al. (1994)'s extensive description of ER development in children, even as infants, children may start to have the capacity to engage in ER by themselves, but they are mostly dependent on their parents and caregivers. A key component of normative development during this time period is these caregivers managing any emotion dysregulation. As children progress to the preschool years, they are exposed to a bigger social network, as

well as cognitive and linguistic growth, all of which can influence their regulatory strategies. During these years, ER is especially important for normative development because the ER patterns that children use can be characteristic and individual differences in ER emerge between "problem preschoolers" and "nonproblem children" (p. 94). The elementary school years include even more significant cognitive and social developments, which can contribute to greater self-reliance for ER as well as stability of emotion dysregulation.

Because ER is an important part of normative development, it is related to several normative developmental outcomes. Having competent ER skills has been related to individual differences in physical and mental health (Zeman, Cassano, Perry-Parris, & Stegall, 2006), and earlier regulatory behaviors have been associated with later competencies and skills (Calkins & Howse, 2004). More specifically, ER has been shown to be crucial for social competence, be a protective barrier, and be subject to normative (healthy) parental influences.

ER and Normative Developmental Outcomes

ER and social competence. Social competence is defined as "effectiveness in social interaction" (Rose-Krasnor, 1997, p. 1). ER has been linked to individual differences in social competence (McDowell et al., 2000), and can influence normative development in several ways. For example, higher levels of engaged ER and increased ability to regulate emotions have predicted or been correlated with higher levels of social competence (Eisenberg et al., 2001b; Monopoli & Kingston, 2012; Penela, Walker, Degnan, Fox, & Henderson, 2015), whereas other dimensions of ER, such as emotional venting, have been negatively correlated with social competence (Blair, Denham, Kochanoff, & Whipple, 2004).

ER can also have a protective role in the development of social competence. For example, Penela et al. (2015) found that engaged ER at age five explained the link between behavioral inhibition at ages two and three and social competence at age seven for children showing higher levels of behavioral inhibition. This suggests that ER can serve as a protective barrier for certain children who are at risk for social competence deficits in the future because of their temperament. Denham et al. (2013) also found that ER predicted social competence at ages three to four more strongly for children who were more negatively emotional. Specifically, their capacity to refrain from dysregulated venting (defined as using venting emotional expressiveness or behavior to cope) benefitted them, again suggesting that ER can be a protective factor for children who could be at risk for poor social competence.

Normative development of ER for at-risk children. Emotion regulation can also serve as a protective barrier for maltreated children and children who are at risk for regulatory impairments, aiding in their development of normative outcomes. For example, even among children between the ages of six and twelve who had faced emotional maltreatment, neglect, physical abuse, and/or sexual abuse, higher emotion regulation was predictive of lower internalizing symptoms a year later, as mediated through higher peer acceptance (Kim & Cicchetti, 2010). Furthermore, children from high-violence areas and neighborhoods who expressed higher emotion regulation had lower internalizing and externalizing symptoms (Kliewer et al. 2004).

ER and healthy parental influence. As previously mentioned, parental influence is a component of normative development of children's ER. This influence can be exhibited in several ways. For example, parents' own regulation and emotion displays can play a role. Among four-to-six-year-olds and their families, mothers' own regulation indirectly

affected their children's social adjustment through its influence on children's regulation (Eisenberg et al., 2001). Specifically, mothers who regulated their emotions to be high in positive affect and low in negative affect had children who also had high regulation. In turn, these children then had fewer externalizing and/or internalizing problems and more social competence (2001). Similarly, in a study using children's affect intensity of both positive affect and anger as a component of their ER, researchers found that positive parental affect was associated with higher positive affect and lower anger in children (Robinson et al., 2008).

Parenting behaviors and strategies can also serve as healthy parental influences on children's normative development of ER. Jaffe, Gullone, and Hughes (2010) found that specific parenting behaviors and strategies are more beneficial for children's ER development. The researchers were particularly interested in the children's use of the ER strategies such as cognitive reappraisal and suppression, and considered the former more adaptive. Paraphrasing definitions proposed by John and Gross (2004), the authors defined reappraisal as "redefining a potentially emotion-eliciting situation in such a way that its emotional impact is changed" (p. 48) and suppression as "the inhibition of ongoing emotion expressive behavior" (p. 48). The researchers concluded that "in comparison to parental overprotection, caring parenting behaviors may be more important for the development of ER strategies" (p. 56) and could serve as a "buffer against potential risk" (p. 56) because caring parenting behaviors, unlike overprotective parenting behaviors, were associated with more use of reappraisal and less use of suppression by children. Shipman et al. (2007) were interested in the role of maternal validation in the relation between maltreatment and emotion regulation. The authors defined maternal validation as "reflective of emotional acceptance" and inclusive of behaviors related to showing "interest in the child's emotional experience," being empathetic, and helping children cope with emotions (p. 274). They found that among physically-abused children, maternal validation mediated the relationship between maltreatment and children's adaptive ER. Specifically, while maltreated children had lower ER compared to non-maltreated children, including maternal validation in the analyses eliminated the effects of maltreatment and predicted more ER. In another study aiming to delineate parental and familial effects on children's ER of jealously, older siblings were better able to regulate their jealousy if there was a positive marital relationship between their parents (Voling, McEwain, & Miller, 2002). The investigators also found that children who were more securely attached to their mothers exhibited less dysregulated behavior (2002). Healthy parental influences have also been found to play a role in children's recognition of appropriate ER strategies. For example, greater maternal supportiveness when children are feeling distressed increased children's ability to endorse and recognize effective anger regulation strategies (Cole, Dennis, Smith-Simon, & Cohen, 2009).

ER Regulation and Non-Normative Development

When ER does not develop normally, children can develop internalizing and externalizing symptoms. In many studies, ER has been associated (both longitudinally and concurrently) with externalizing and internalizing behaviors across early childhood among children who are already at risk for developing regulatory impairments. Unlike girls who were in the clinical range for externalizing behavior problems throughout the ages of two to five, two-year-old girls within a borderline-clinical range who manifested better ER strategies had lower levels of externalizing

symptoms at ages four and five (Hill, Degnan, Calkins, & Keane, 2006). These results suggest that sustained levels of poor ER can lead to sustained or higher levels of externalizing behavior, while the use of adaptive ER strategies can serve as a protective barrier against these outcomes. Maltreated children tend to display behavioral and/or emotional dysregulation, as well as internalizing and/or externalizing problems (Kim & Cicchetti, 2010; Robinson et al., 2008; Shields et al., 1994). Kim and Cicchetti (2010) found that for maltreated children, emotion dysregulation and lower ER predicted higher internalizing and/or externalizing symptomology both concurrently and longitudinally. Notably, earlier onset of maltreatment was more predictive of lower ER than was later onset (2010), suggesting that certain children are already at-risk for emotion dysregulation and without the adoption of better ER, can be subject to continued or increased internalizing and externalizing symptoms. Children between eight and 12 years of age with anxiety disorders have reported more dysregulated expression across multiple emotions (namely, sadness, worry, and anger) and less adaptive coping compared to children in the same age cohort without anxiety disorders, with their mothers confirming that their children have problems with appropriate emotion expression (Suveg & Zeman, 2004). Among boys from families with low-income backgrounds with mothers with high negative control, those who presented with low anxiety symptoms initially but displayed anger and focused on the source of frustration during an ER task (delay-of-gratification task) at age three-and-a-half tended to have increased anxiety levels over time (Feng, Shaw, & Silk, 2008).

Even among children who are not already at-risk, poor ER can be predictive of internalizing and externalizing symptoms. Among fourth and fifth graders, difficulty identifying one's own negative emotions, inhibition of anger, and inappropriate expression of anger and sadness predicted internalizing symptoms, whereas dysregulation of sadness predicted externalizing symptoms (Zeman, Shipman, & Suveg, 2002). However, constructive coping with angry behaviors was associated with both lower internalizing symptoms and externalizing symptoms (Zeman et al., 2002). This makes sense considering constructive coping requires the use of strategies that result in positive outcomes (London, 1997). For example, Zeman et al. (2002) gave the following example of constructive coping: "I try to calmly deal with what is making me feel mad") (p. 4). Predictive associations between emotion regulation and child behavior problems are especially significant considering that a substantial amount of research has confirmed that early internalizing and externalizing behaviors are predictive of later internalizing and externalizing behaviors (Ashford, Smit, van Lier, Cuijpers, & Koot, 2008; Mantymaa et al., 2011).

The Disappointing Gift Task

Methodology

As investigators continue to search for congruence among findings related to ER, one of the assessment tools used to examine ER has been the Disappointing Gift Task (DGT). This paradigm was first conceptualized by Saarni (1984) and Cole (1986) with the basic premise of recording children's reactions when they receive a disappointing gift or prize. For elementary-school-age children, Saarni's methodology involved splitting the Task into two sessions, both of which were videotaped. The first session consisted of the experimenter telling children they would receive a gift for their work in helping with a project, and ended with the unwrapping of an "attractively wrapped and tied package that contained a small can of juice, a candy bar, and 50 cents" (p. 1506) and a promise of a second gift after they helped with another project next time. During the second session, the children helped with this other project

and received a gift from a bag containing "drab and unimaginative" baby toys (the disappointing gift) (p. 1506). Afterwards, the children were told that a mistake had been made and were instead given their real gift: colored pens. Saarni utilized facial coding and non-facial expressive behavior (vocalizations, body movements, gaze directions, etc.) coding for three dimensions: negative, positive, and transitional response. For children between the ages of three and nine, Cole's study involved two sessions and use of facial codes that were later separated into positive and negative displays, but her study also included children rank-ordering potential gifts, coding of verbal statements, experimenters introducing the good prize before the disappointing prize, and the use of a social/non-social condition. The DGT has been adapted from these earlier studies, and variations and similarities between different ways of using the DGT to operationalize of ER are discussed below.

Coding and measuring the DGT. Understanding the usefulness of the DGT as a measure of child emotion regulation requires an analysis of how ER has been operationalized across different studies. Coding of affective and behavioral regulation has differed across studies because investigators who have used the DGT have included other constructs of interest such as effortful control (Eisenberg et al., 2001; Kieras et al., 2005; Liew et al., 2004), emotional competence (Bohnert et al., 2003), and inhibitory control (Eisenberg et al., 2001; Liebermann, Giesbrecht, & Müller, 2007); have focused on populations differing in age and risk status; or have used the DGT to understand display rule behaviors. Since its original use by Saarni (1984) and Cole (1986), the DGT has been adapted by several researchers. The most common affect codes across these studies have been joy, anger, and sadness. Some investigators have examined those affect expressions separately, whereas others have combined several discrete emotions into either positive or negative affect or simply coded for positive and negative emotions. There has been a mix of studies looking at both affective and behavioral regulation, but few investigators have examined behavioral regulation solely during the DGT. The more common behavioral constructs are active regulation, passive tolerance, disruptive behavior, and withdrawal behavior, although some studies have looked global levels of positive and negative behaviors. In short, despite the assessment of some similar emotions and behaviors across multiple studies, the exact ways that these emotions and behaviors have been coded has differed between studies. Most studies have incorporated both social and non-social situations (the presence or absence of another individual in the room with the child), and this has generally been done using an examiner who maintains neutral expressions throughout the DGT, although some investigators have added parents' (generally, mothers') presence. Regarding the steps in the DGT, most studies have involved the child first being given the disappointing gift, the reactions to this gift being recorded, and lastly, the child being given the desired gift. However, some investigators, have presented the first-choice gift before the disappointing gift (Cole, 1986; Liebermann et al. 2007; Tobin & Graziano, & 2011).

There is not a clear answer regarding what is an appropriate response during the DGT. First, as previously-mentioned, assessing the appropriateness of ER requires consideration of the context. It is crucial to attempt to understand the distinction between regulation and dysregulation in the context of the purpose of the DGT: to provide a stressful situation to assess children's reactions. Thus, it would make sense for children to react negatively, whether through their affective expressions or their behaviors in response to receiving the disappointing gift. However, both Cole (1986) and Saarni (1984) expected that older children would have more

positive displays and/or less negative displays in response to the disappointing gift. Specifically, Cole (1986) argued that in cultural display rules would necessitate "the minimization or masking of negative emotion" (p.1309) and Saarni (1984) argued that positive behavior "was taken to be legitimate grounds for inferring use of self-regulation of expressive behavior" (p. 1505). Other researchers who have used the DGT have also assumed this definition of age-appropriate regulation. For example, Carlson and Wang (2007) described frequent negative expressions during the DGT as indicative of poorer emotion regulation, and Spinrad et al. (2004) described positive expressions in the presence of the experimenter as regulating "expression of disappointment" (p. 46). However, it is possible that some researchers have assumed that more negative reactions are indicative of poorer emotion regulation because many of these studies have been adapted from Cole's (1986) and Saarni's (1984) work. In a later study, even Cole and colleagues wrote that "anger could be expressed appropriately in a disappointing situation" (p. 844) but could be dysregulatory if linked to more disruptive behavior during the disappointment (Cole et al., 1994). Furthermore, based on past literature, there are mixed findings regarding whether older children display more positive and/or less negative reactions during the DGT (Cole, 1986; Carlson & Wang, 2007; Garrett-Peters & Fox, 2007; Kieras, Tobin, Graziano, & Rothbart, 2005).

The DGT as a measure of ER. ER involves responding to situations that elicit emotional arousal. Cole et al. (1994) have defined ER as "the ability to respond to the ongoing demands of experience in a manner that is socially tolerable and sufficiently flexible" (p. 76) since regulation "implies a dynamic ordering and adjusting of the emotion to the environment" (p. 83). Olson and Sameroff (2009) have also described behavioral regulation processes as "processes evolved in a context where such regulations are needed" (p. 6) that include "in-the-moment responses to environment challenges and complex changes in the organization of regulatory behaviors across development" (p. viii). As such, it is important to stimulate a distressing situation to assess children's ER strategies and whether these strategies can be attributed to adaptive or maladaptive regulation. The DGT has been shown to produce negative emotion compared to other tasks that are supposed to produce neutral reactions (Feng et al., 2008), suggesting that it does elicit some initial level of stress that can be used to examine individual differences in response patterns. In fact, some studies have suggested that even preschool-age children are able to engage in regulation of negative emotions, spontaneous expressive control, the social situation at hand, and/or disappointment (Cole, 1986; Josephs, 1994; Talwar, Murphy, & Lee, 2007). This could be due to the rapid development of ER in young children. Furthermore, the DGT allows for an objective assessment of individual differences in children's ER without having to rely solely on self-reporting or parents' reports to assess emotion regulation. Young children have been found to have an extreme response when rating emotion states (compared to physical states) (Chambers & Johnston, 2002). Traditionally, laboratory or observational measures of children's ER have been preferred because these can increase "the level of inference that can be drawn" and attempt controlling "to a degree, contextual factors that are integral to inferences about emotion" (p. 328) since young children can have significant difficulty reporting their own emotional experiences (Cole et al., 2004).

Findings of the DGT

Because measures of ER have been used to predict outcomes and understand development in various sectors of children's life, the DGT has been

implemented in understanding outcomes (externalizing/internalizing behaviors and social competence) and parental impact on children's ER.

General findings. The DGT has been used in studies that have included analyses of age and gender differences in the development of emotion regulation. Findings regarding differences between girls and boys are mixed. In their study of fourth-graders, McDowell et al. (2000) found that children's reactions during the DGT were better predictors of social competence ratings by teachers and peers for girls than for boys. When examining preschool children between the ages of four and six, Carlson and Wang (2007) indicated that girls were less likely than boys to state that they liked the disappointing gift. Conversely, for children between the ages of four to five and seven to eight, Garrett-Peters and Fox (2007) found that boys are more likely than girls to acknowledge receiving or not liking the disappointing prize. Some studies have included differences in positive and negative affect and behaviors between boys and girls during the DGT, and have suggested that girls tend to show more positive expressions and behaviors. For example, two groups of investigators found that girls tended to have more positive facial behaviors or smiling compared to boys while receiving the disappointing gift (Cole, 1986; Talwar et al., 2007). It was unclear whether this finding extended to other conditions of the DGT. For example, Cole (1986) found that boys smiled just as much as girls did while receiving the desired gift, whereas Talwar et al. (2007) found that girls displayed more positive behaviors compared to boys when receiving both the desirable and disappointing gift. Among preschoolers, Liew et al. (2004) found that boys tended to display more negative behavioral (verbal/gestural) reactions compared to girls; this finding was also replicated for children between the ages of four to five and seven to eight (Garrett-Peters & Fox, 2007). However, other investigators have found no gender differences in responses during the DGT when assessing children of ages seven to ten, four, and three to five, respectively (Bohnert et al., 2003; Feng et al., 2008; Kieras et al. 2005).

Regarding the influence of age, older children have been found to display less negative and/or more positive emotional or behavioral expressions when receiving a desirable gift, undesirable gift, or both compared to younger children (Carlson and Wang, 2007; Garrett-Peters and Fox, 2007; Simonds, Kieras, Rueda, & Rothbart, 2007; Talwar et al., 2007). Significant age differences were found within children between four to six years of age, four to five years versus seven to eight years of age, seven to ten years of age, and three to 11 years of age, respectively. In contrast, Josephs (1994) found that younger children (M = 59 months) had more positive behaviors in reaction to both the first-choice gift and the disappointing gift when compared to older children (M = 75 months). Furthermore, among 55-to-97-month-old (M = 74.58 months) children, Eisenberg et al. (2001) found that older children had more negative reactions to the disappointing prize than younger children, and Liew et al. (2004) found a positive relationship between age and general negative affect during disappointment for preschoolers (M = 4.87 years). Unlike older children (ages six to nine), younger children (ages three to five) have also been found have an association between greater right frontal activity and more frequent withdrawn behavior (passive response, sadness, and worry) in response to a disappointing gift (Forbes et al., 2006). However, other studies have shown that age does not differentiate positive / negative affect or expressive behavior during the DGT (Cole, 1994; Kieras et al., 2005).

Regarding cross-cultural variation, there is a limited research looking at the implications of the Disappointment Task in different cultures since most

of the samples have been of European-American children. However, Garrett-Peters and Fox (2007) suggest that among Chinese-American and European American children, adoption of more Western values may lead to more similar behaviors between the two groups (i.e. fewer negative and more positive behaviors in response to the disappointment), even though there are certain complications associated with using a behavioral coding system that is more applicable to Western cultures for other cultures. Furthermore, Smith's (2001) finding that preschool-age African-American children's emotion regulation during the DGT was not associated with individual differences in their peer acceptance does not resemble the general findings observed in European-American children.

DGT and social competence. As with general ER literature, the DGT has also been used to assess relations between children's ER and social competence. McDowell et al. (2000) found that children's positive reactions to a disappointing gift were associated with more positive ratings by peers and by teachers. Tension, social monitoring, and "doing nothing" (p. 308) reactions to the disappointment were related to more negative peer and/or teacher ratings among fourth graders (middle childhood) (2000). Furthermore, for preschool children, Liew, Eisenberg, and Reiser (2004) found that the occurrence of immediate negative verbal and gestural responses in response to the disappointing gift were related to lower social competence.

DGT and externalizing/internalizing behaviors. The DGT has also been used to examine the relationship between ER and children's externalizing and internalizing symptoms. Among 55-97-month-old children, those who had *T* scores equal to or above 60 on the CBCL (as reported by parents) for internalizing problems had less negative reactions to the disappointing gift than children who had *T* scores equal to or above 60 on the externalizing problems scale. This finding was replicated using the TRF, but only for girls (Eisenberg et al., 2001). Among four to five-year-old children, Cole, Zahn-Waxler, and Smith (1994) found that the display of negative emotions during the disappointing situation was subject to variations due to interactions between gender, risk-status (based on CBCL Total Behavior Problems and TRF scores), and experimenter status (present or absent). For example, children who were at low-risk displayed less negative emotion than children who were at-risk during experimenter presence, but this was significant only for boys when the experimenter was present and for girls when the experiment was absent. Nonetheless, it is important to note that these results do not necessarily suggest that all displays of negative emotion during the DGT are associated with externalizing and/or internalizing symptomology.

DGT and Parents' Influence. As parents have a significant impact on children's ER, the relationship between their personal regulatory strategies and mental health and children's ER has been examined using the DGT as an indicator of children's emotional and/or behavioral responses to stress. For example, in four-year-old children of mothers with childhood-onset depression (COD), maternal positivity was associated with active regulation and joy during the DGT (Feng et al., 2008). Unlike for children of mothers without COD, these children's behavioral inhibition was positively related to passive regulation and sadness (Feng et al., 2008). Furthermore, children of mothers with COD showed less active regulation and positive affect compared to children of well mothers, so maternal COD was predictive of these reactions during the DGT (Feng et al., 2008). Moreover, among children between the ages of three and nine, those whose parents had a history of depression had difficulty regulating and keeping their cardiovascular physiology (heart period) flexible across different

conditions of the DGT (Forbes, Fox, Cohn, Galles, & Kovacs, 2006). In some studies, parents have been present with the children during the DGT, and Tobin and Graziano (2011) found that for children between the ages of five and ten who have a trait of moderate agreeableness, a mother's presence has been useful in "promoting socially appropriate emotion displays" (p. 235). Among children between the ages of three and 11, parents' instructions facilitated children's verbal and nonverbal display behaviors (Talwar et al., 2007). In working with normally developing children, Spinrad, Stifter, Donelan-McCall, and Turner (2004) found that regulation strategies mothers used with their children at 18 and 30 months of age were associated with children's facial expressions and self-regulation emotion regulation strategies during the DGT at age five. The regulation strategies used by mothers when their children were 18 and 30 months of age were coded from several laboratory sessions, which were meant to elicit both children's emotional reactivity as well as maternal behaviors and included activities such as the cleaning-up toys and the frustrating toy removal task. Specifically, mothers who used more regulation strategies at 30 months had children who, in response to the disappointing gift, showed more positive facial affect in the presence and absence of experimenters and less negative facial affect when the experimenter was present than those children whose mothers used fewer strategies. The researchers had assumed that positive expressions in the experimenter's presence while receiving the disappointing gift would be indicative of regulating disappointment. Furthermore, mothers who used soothing and questioning as regulation strategies in response to their 18-month-old children's emotions had children who used more distraction or no behavioral strategy during the DGT, respectively (Spinrad et al., 2004). However, there also were some unexpected findings. For example, frequency of mothers' regulation strategies in response to their children's affect at 18 months of age was not related to children's facial expressions during the DGT, and specific regulation strategies used by mothers at 30 months were not related to children's self-regulation during the DGT. Overall, the studies that have incorporated parental involvement, regulation, and mental health while using the DGT to study children's ER have illustrated multiple pathways for parental influence on the development of maladaptive or adaptive ER strategies in children.

Limitations of the DGT

Given the prevalent amount of research that supports the longitudinal implications ER has in various areas of children's development, it is surprising to find a dearth of research utilizing longitudinal data from the DGT across multiple waves as well as research assessing the both the validity and reliability of the DGT. Furthermore, there is a significantly low amount of research using the DGT with different cultural groups of children (i.e. groups other than European-American children). Studies such as the one done by Garrett-Peters and Fox (2007) suggest that there are important differences between children of different backgrounds and that different coding systems should be considered when assessing children from different racial/ethnic groups. Lastly, as previously mentioned, there are variations in how affective and behavioral responses have been coded during the DGT. Studies differ especially in whether they examined both affective and behavioral responses or just one type, as well as in the indicators for coding such responses. For example, Forbes et al. (2006) combined displays of disgust, passive regulation, worry, and sadness into one composite variable, while Feng et al. (2008) only included passive tolerance and sadness in one principal component. On the other

hand, Eisenberg et al. (2001) examined the global-level presence of either positive or negative reactions comprising of both facial and behavioral codes, while investigators such as Garrett-Peters and Fox (2007) adapted their coding system from Saarni (1984).

Future Directions and Research

If the DGT has been accepted as an operationalization of ER, it is important to assess whether it is a stable measure and whether it can significantly predict developmental outcomes (i.e. externalizing, internalizing, psychopathological) throughout childhood. Examining the stability of responses to the disappointing gift between waves throughout childhood can provide a deeper understanding of ER development and deviations from expected patterns. Thus, it is crucial to address the dearth of longitudinal assessments of children's ER that use the DGT. Future studies using the DGT to operationalize emotion regulation should first consider the nuances of normative regulation, given the differences between social and non-social situations and age groups. Although it is expected for older children to react positively to a disappointing gift, it is important to address the appropriateness of this expectation and whether we are expecting older children to feel more negative internally but be adept at suppressing these emotions and showing positive emotions and behaviors instead. If this expectation stands, then it is also crucial to consider specific age groups for which it is most relevant. It may prove beneficial to use longitudinal assessments of the DGT at preschool-age, age six to seven, and again during the later elementary-school ages to understand if this expectation is appropriate as children age and develop more regulation strategies. Furthermore, examining more different at-risk populations might be crucial toward understanding a complete picture of how maladaptive ER can impact various populations or serve as a mediator between early symptomology and later problem behaviors. Beyond looking at different at-risk populations, it is necessary to assess differences between more cultural groups (including ones with different socio-economic statuses) and assess the nuances of universal and cultural-specific nature of adaptive development. Given diversity in upbringing as well as the fact that most studies utilizing the DGT have looked at overrepresented samples of European-American children, it would be important to assess whether expectations about adaptive regulation during disappointment are cross-cultural. Lastly, considering the variations in affective and behavioral coding, it might prove beneficial to have a congruent system of coding in a longitudinal study that encompasses the codes and methodology used by other investigators in previous research.

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Echo: the Romanticization of Mental Illness on Tumblr

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For decades, mental illnesses had been portrayed in mainstream media as fearful, violent, and isolating conditions embodied by serial killers and murderers. Today, with the advent of social media, this perception is changing, but perhaps not for the better. The romanticization of mental illness is the depiction of mental illness as attractive or appealing to the viewer. Romanticization can come in many forms, such as in the glorification of suicide that shines through in Netflix's popular series 13 Reasons Why, or, quieter and perhaps more sinister, in the form of images shared on a social media platform called Tumblr. On Tumblr, users can post, like, and share multimedia content with their followers. Unfortunately, much of this multimedia content romanticizes mental illness, and social media's distinctive ability to create micro-communities of like-minded followers allows for the formation of echo chambers, where users can share such content, have similar content reflected back at them, and thus have their worldviews go unchallenged. These echo chambers, while seemingly confined to the Internet, can have broader consequences on neurotypicals, the mental illness community, and society as a whole.

A quick search of tags such as "depression," "self-harm," or "suicide" on Tumblr brings up a multitude of black-and-white, aesthetically pleasing photos of razor blades and bottles of pills with self-deprecating, suicide-promoting captions. For teenagers like Laura, a 16-year-old Tumblr user, the prevalence of these images can soon lead to a desire to be depressed, or in her words, a "pin[ing] to be mysterious, haunted, fascinating" (Bine, 2013). Many Tumblr users today, especially teenaged girls, are sucked into this romanticized ideal of depression. The romanticization of mental illness is the depiction of mental illness as more glamorous, attractive, or alluring than it truly is. But romanticization has not always been society's attitude toward mental illness. In the past, traditional mainstream media in the form of newspapers, movies, and television perpetuated a very different image of mental illness, one of the "mad murderer," with 1 in every 10 Hollywood movies featuring a main character with a mental illness—often a violent, psychopathic killer (Wahl, 2006, p. 5). With the advent of social media, however, perceptions of mental illness are rapidly shifting. Many social media websites, such as YouTube and Twitter, have created platforms where users can openly discuss and learn about mental illness. Unfortunately, other websites, Tumblr in particular, are the site of romanticization. The romanticization of mental illness on Tumblr could be particularly harmful because of this website's tendency to facilitate the creation of isolated "echo chambers." These echo chambers are online communities where ideas and beliefs are reinforced through constant repetition within a closed system, where users can feed off each others' negativity and thus perpetuate both the romanticization of mental illness and the

negative consequences of mental illnesses themselves. In this paper, I will use the echo chamber as a model to understand how various communities interact with mental illness, and I will argue that the creation of these echo chambers can have profound consequences on three distinct communities: neurotypical Tumblr users, the mental illness community, and society at large.

While I will be referencing Tumblr and other forms of social media throughout this paper, any statements made in this paper are not meant to be critiques of these social media platforms and are not meant to implicate these platforms in the activity that occurs within their websites. This paper should rather be interpreted as a commentary on the phenomena that have been observed on these social media platforms. Since this paper was originally written, Tumblr has taken down several pictures and users associated with the topics mentioned, and a search of the aforementioned tags ("depression," "self-harm," and "suicide") will lead to a page titled "Everything Okay?" and several external links to mental health websites before the user is allowed to proceed.

Mental Illness in New and Old Media

Historically, views on mental illness have centered on fear. The media carefully cultivated an image of the mentally ill as violent killers. Consequently, this created a society of people who feared mental illness due to misinformation and misunderstanding. As Otto Wahl (2006) states, while "[mental illness] is indeed everywhere in the mass media…mass media do a poor job of depicting mental illness" (p. 12). In fact, a 1991 nationwide poll identifies popular media as the main or only exposure that Americans have to mental illness (Wahl, 2006, p. 3). Debra Merskin (2012) asserts the importance of this statistic by pointing out that this pervasive image of mental illness in mass media can affect both how neurotypical people view those with mental illness, as well as how those who are mentally ill view themselves (p. 45).

Because of its widespread impact on both neurotypicals and the mental illness community alike, it is important to understand the media's portrayal and distortion of mental illness. One theory, proposed by Simon Cross (2010) is that the media "are symbolically shoring up the boundary between 'us' and 'them,' which until recently was concretely manifested in the bricks and mortar of the asylum" (p. 18). This desire to segregate into "us" versus "them" could be interpreted as a direct consequence of the deinstitutionalization of mentally ill patients in the 1960s and 70s. As patients left asylums and rejoined communities, the lack of education about mental illness in the general public led to alarm, outrage, and eventually the isolation of what, and who, the public simply did not understand.

This delineation of "us" versus "them" is most apparent in the "mad murderer" trope. This is a common characterization used by many forms of media in which mentally ill patients are often depicted, either in real news stories or fictional plotlines, as murderers. This media distortion creates a link between criminality and mental illness that, due to sheer prevalence, often cannot be broken (Wahl, 2006, p. 65). In one study, George Gerbner examined favorable portrayals of major television characters (heroes) and unfavorable portrayals (villains) for several marginalized groups, including women, African Americans, people with physical disabilities, and people with mental disabilities, and discovered that mentally ill characters are the only group with a villain-to-hero ratio greater than one (Wahl, 2006, p. 66). Not only are mentally ill characters more likely than other marginalized subgroups to be portrayed as villains, but 72.1% of mentally ill characters on prime-time television dramas are violent, and 21.6% are killers (Wahl, 2006, p. 66). This is also the case in movies, Merskin (2012) points out, with the horror

movie genre being a particularly notable example, as psychopathy is frequently featured in slasher films such as *Friday the 13th*, *The Silence of the Lambs*, and *The Texas Chainsaw Massacre* (p. 53). These depictions of violent, mentally ill characters mirror the media exaggerations Cross (2010) mentions and serve to define mental illness as "other," thus magnifying the rift between "us" and "them."

However, recently, there has been a major shift in perspectives on mental illness. Those with mental illnesses are beginning to embrace their neurodiversity, leading to the emergence of a new viewpoint, coined the "creativity mystique" by Katie Rose Guest Pryal (2011). According to Pryal (2011), the creativity mystique is a "product of the era of modern psychiatry [that] suggests not only that mood disorders are sources of creative genius, but also that medical treatment should take patient creativity into account." This is similar to the "mad genius" trope in popular media, with the mentally ill character embodying a frenetic, wild-haired scientific genius, in that the creativity mystique separates those with mental illness as better, smarter, or more creative than the average, neurotypical person. Graphic novelist Ellen Forney (2012) illustrates this viewpoint well in her memoir, *Marbles: Mania, Depression, Michelangelo, & Me*. Once she is diagnosed with bipolar disorder, she begins to feel validated in her new identity as a "crazy artist," and even resists taking medication, as she believes it will cause her to lose her creativity (Forney, 2012, p. 22-25). Interestingly, the creativity mystique still embodies Cross's theory on media's use of stigmatization to distinguish "us" from "them," but both Pryal's essay and Forney's book present the rhetoric of the other side, in which normalcy, rather than mental illness, is the object of disdain. It is with this disdain for neurotypical tendencies and the desire for neurodiversity, in the form of mental illness, that romanticization of mental illness begins.

Romanticization in Traditional Media

Due to the historical representation of mental illness by the media, and the simple fact that romanticization is a new concept, a romanticized depiction may not be the first that comes to mind when discussing media distortion of mental illness. However, that makes this portrayal of mental illness all the more dangerous: it often flies under the radar, and romanticizing mental illness may even be seen as an acceptable coping method for those who are mentally ill, but its potential effects are more serious than one might imagine.

A prevalent example of the romanticization of mental illness in today's media is the Netflix series *13 Reasons Why*. The series is based on Jay Asher's young adult novel about Hannah Baker, a teenager who, after being bullied, commits suicide and leaves behind 13 recordings on cassette tapes, one for each person that she claims caused her to kill herself. While this book and its Netflix series are impactful in that they open up a dialogue about mental illness and suicide, both go about this conversation the wrong way. By continuing Hannah's story beyond her death, she goes from a passive victim of bullying before she died to an active protagonist after her death, managing to take control of her situation post-mortem. Through these tapes, she is able to blame others for her suicide and enact her revenge, which gives her a considerable amount of power. This message that she was originally powerless to stop her bullies, but gained power through suicide, is a dangerous one (Grimm, 2017). *13 Reasons Why* romanticizes suicide by highlighting its appeal to a young audience, many of whom may be in the same situation as Hannah Baker. Nineteen-year-old Alexa Curtis says that she was bullied in high school and, had she watched *13 Reasons Why* as the "vulnerable, fragile kid that [she] was when [she] was 13 or 14…[she] might have thought, 'Oh, that's the easy way out. This is going to get me the attention that I

need'" (Howard, 2017). Jaclyn Grimm (2017) expresses this same sentiment, writing that she has dealt with depression and suicidal thoughts since middle school, and while watching *13 Reasons Why*, what stood out to her was not the bullying or suicide, but the power and control Hannah had after her death.

The experiences these women detail are part of a wider phenomenon called suicide contagion, a "process by which exposure to…suicide or suicidal behavior of [a person] influences others to commit or attempt suicide" (O'Carroll & Potter, 1994). The Centers for Disease Control and Prevention details several aspects of news coverage that can promote suicide contagion, such as describing technical details of the suicide, presenting suicide as a means of accomplishing certain ends or as a coping mechanism, and glorifying suicide or those who commit suicide (O'Carroll & Potter, 1994). All of these aspects of news coverage are also present in *13 Reasons Why*, suggesting not only that the show romanticizes suicide, but that it also has the potential to promote suicide contagion in its viewers. By selectively capitalizing on a sense of satisfaction derived from the retribution that Hannah delivers onto her bullies, *13 Reasons Why* makes suicide and its aftermath seem all the more appealing, the very definition of romanticization. Yet, this is a widely popular series that has been praised for how openly it speaks about bullying and suicide, which perfectly illustrates how romanticization of mental illness in the media can fly under the radar.

Romanticization in Social Media

Romanticization of mental illness and suicide do not only occur in familiar forms of media, like movies and television. Social media is a new platform for romanticization that is perhaps more prominent, more prevalent, and more personal to its viewers than traditional media. Tumblr, specifically, is a social networking and blogging website with an extremely wide reach—it has around 550 million monthly users and 345 million blogs (Gordon, n.d.). Tumblr allows users to instantaneously share multimedia content, including photos, stories, and statuses, to their followers. While this platform is used as an artistic outlet for many, it can be used to further romanticize mental illness by others. Many users post and share aesthetically pleasing photos associated with mental illness and suicide. For example, we can examine the image below, originally posted on Tumblr (Rick, 2016).

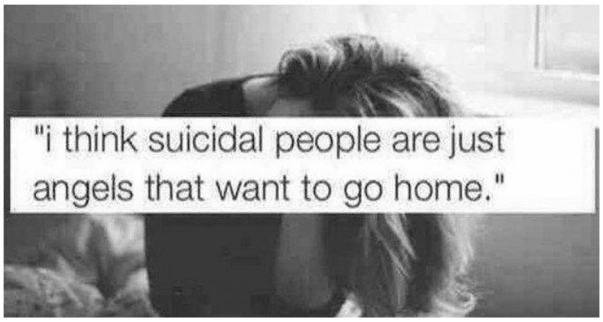

Fig. 1. *A picture originally posted on Tumblr, taken from The Tab. This image depicts a girl with her head in her hands, with overlain text reading "i think suicidal people are just angels that want to go home."*

This image is a prime example of the romanticization of depression and suicide that can be found on Tumblr. Angels are beautiful, divine beings, highly valued by society in a spiritual context. In drawing a metaphor between people who are suicidal and angels, the photo suggests that suicide is a spiritual act. It also suggests that those who are suicidal are to be revered or admired in the way society admires angels. Even the image itself contributes to its romanticization, with the aesthetically pleasing background of a girl with her head in her hands, hair falling in waves and lit by the light streaming through the window. The beautiful

scene further emphasizes the perceived beauty of the words printed over it.

This post echoes a common theme, often set to different filters, backgrounds, font styles, and wordings, that creates an image of the mentally ill as a fallen hero, someone who has fought against their illness and died a beautiful death. This can be dangerous as it can lead to a kind of hero-worship, where someone with mental illness, or perhaps the mental illness itself, is put on a pedestal. This may entice neurotypical people to look up to this person or their mental illness, and perhaps even desire to be like them. This feeling is invoked in Figure 1, where the audience is invited to think of suicidal people as ethereal beings, physically above and emotionally incomprehensible to humans, something to regard with awe and perhaps aspire to. This is where romanticization can be damaging in more ways than one. By seeing those with mental health issues as heroes, society is constructing their identities the way it wants to see them, and effectively ignoring who these people really are and the struggles they face. Pictures like Figure 1 are not necessarily representative of the way those who have suicidal tendencies want to be portrayed, as can be seen in the use of the phrase "I think"—here, someone on the outside, perhaps a neurotypical, non-suicidal person, is imposing their views on the motivations behind suicide and perpetuating this idea of what they believe mental illness to be. This overtaking of the rhetoric surrounding mental illness by those who themselves are not mentally ill takes away the voices, and therefore the accuracy, of the movement to bring awareness to mental health.

Another potential consequence of this romanticization and forcible usurpation of rhetoric is a newfound desire to be mentally ill. In building up mental illness as a "hero's struggle," those who are not affected by such a struggle may find themselves desiring the same attention that they see as possessed by those with mental illness. This desire can be especially potent on social media, such as Tumblr, where users are sucked into a black hole of romanticization. Dr. Mark Reinecke claims social media websites like Tumblr can perpetuate a negative cycle of self-pity (Bine, 2013). Anyone can join these websites and post pictures, which creates communities of users seeking self-affirmation, but can actually drown out the voices of those who are actually mentally ill and are using these social media sites to get help. He claims these communities are not put in place for users to help each other, but are instead "reverberating 'echo chamber[s]' of girls who are…potentiat[ing] the negative feelings" (Bine, 2013). This is not to say that those who are affected by mental illness are not also part of these communities, or to say that mental illnesses are self-propagating and fabricated, but rather to draw attention to the possibility that perhaps, some of the loudest voices in these communities may not be ones who need the most support.

The Echoes of Social Media

The "echo chamber" mentioned by Dr. Reinecke is an idea of central importance, both to how Tumblr remains such a widespread form of social media and to how the romanticization of mental illness is able to continue cycling through Tumblr.

Social media is itself an echo chamber. To understand social media and its prolific use, one must understand the interplay between social media and identity. Sherry Turkle (1995) cites loneliness and the desire to express aspects of self that are hidden in real life as reasons for the rising dominance of social media in today's world (p. 178). She points to a branch of psychoanalytic theory that suggests that identity is multiple, rather than unitary, meaning that there are many different personalities that create one person's identity (Turkle, 1995, p. 178). Social media capitalizes on this theory of identity as multiple by

allowing people to construct a different version of themselves online. On Tumblr, users can construct a mentally ill persona if they so desire, even if their physical body is not mentally handicapped.

Beyond creating a new identity for oneself, Tumblr and other forms of social media are distinct from traditional media in that they allow for real-time, 24-hour, anonymous conversation between users. This is conducive to the formation of homogeneous communities centered around a single idea—in this case, the romanticization of mental illness. This, Eric Meyers claims, is the danger of Tumblr—a phenomenon coined the Silver Bubble Problem (Bine, 2013). This is the theory that when homogeneous communities are created, the members of such groups tend to engage in a negative feedback loop with other people similar to them, who validate their negative emotions and whose negative emotions they in turn validate. In this sense, these users are trapped in a "reverberating 'echo chamber'" from which they often do not want to escape, because "to leave the community would be to lose the people who understand them" (Bine, 2013). The longer they remain in this echo chamber, the longer their worldview goes unchallenged, and the less they want to leave behind the sadness and negative feelings. These echo chambers have consequences on neurotypical Tumblr users, the mental illness community, and the rest of society.

To Desire Mental Illness

One of the most immediate impacts of romanticization of mental illness can be linked to a rising trend of patients presenting to psychiatrists as self-diagnosed with a mental illness. In a study by Chan and Sireling (2010), recent positive media exposure to bipolar disorder may be the reason behind the increasing popularity of bipolar disorder as a self-diagnosis. They reference a patient, Ms. A, who was referred to their psychiatric clinic for possible bipolar disorder. She had recently watched a BBC program titled "The Secret Life of a Manic Depressive," in which actor Stephen Fry gives a personal account of living with bipolar disorder and interviews other celebrities with the disorder. On the show, when asked whether people would "keep" bipolar disorder if they had a choice, almost all respondents chose to "keep" it, saying they enjoyed the "the excitement of feeling high in mood, and powerful" (Chan & Sireling, 2010). This positive portrayal of bipolar disorder appears to have changed the public's perspective on the illness, as evidenced by the positive comments on BBC's website (Chan & Sireling, 2010). In fact, upon being diagnosed with bipolar disorder, Ms. A "was pleased with the diagnosis" (Chan & Sireling, 2010). This is part of a larger trend in primary care mental health, where there is an increase in out-patient referrals from general practitioners whose patients have self-diagnosed with bipolar disorder, and this trend is likely due, at least in part, to media portrayal. While it is difficult to estimate how many of these patients are self-diagnosing accurately due to increased awareness of the disorder, and how many simply want to be mentally ill due to positive portrayals, this increase in self-diagnosis marks a change in the way the public perceives mental illness, shifting away from fear and closer to desire.

Romanticization of mental illness on social media could similarly contribute to a culture of people who want to be mentally ill. Laura, a 16-year-old Tumblr user, experienced this desire firsthand. Laura would scroll through her Tumblr dashboard and "pin[e] to be mysterious, haunted, fascinating, like the other people her age…in black and white photos with scars along their wrists" (Bine, 2013). Now, Laura acknowledges that she did not have clinical depression but was instead, in her own words, "wannabe depressed" due to her desire to relate to the aesthetically-pleasing photos, but her story is only

one of many Tumblr users', where the line between clinical depression and negative emotions is blurred (Bine, 2013). Many Tumblr users may search for the same images as Laura, associated with pain and torment, and they may relate to those images, but like Laura, they do not fit under the clinical diagnosis of depression. Laura affirms the notion of the aforementioned "echo chamber" in that she "just wanted to find a sense of community," and that, to be accepted by this particular community, she had to "advertise [her] suffering" (Bine, 2013). Once Laura became an active member, reblogging and posting such images, she was given the compassion and pity she was seeking from her followers, and thus the echoes continued.

Another risk of romanticization of mental illness is in a phenomenon called emotional contagion, similar to suicide contagion discussed earlier, in which people's emotions can be affected by the emotions of those around them. Several studies have demonstrated emotional contagion as it pertains to mental illness. Haeffel and Hames (2013) studied the depressive symptoms of college freshmen who were randomly assigned roommates and found that students who were exposed to depressive thinking from their roommates during the first three months of school were twice as likely to develop depressive symptoms as those who were not exposed through their roommate. This suggests that there are aspects of mental illness that are "contagious." An experiment by Kramer, Guillory, and Hancock (2014) applied emotional contagion to social networks and found that people who were exposed to more negative posts by their friends in their Facebook News Feed produced more negative posts themselves. This provides further evidence for emotional contagion, and indicates that emotions expressed by others on social media can influence one's own emotions. This is concerning when considering the echo chamber of Tumblr—if a user is constantly immersed in the images, posts, and experiences of those who are mentally ill, it is possible that they themselves will begin to exhibit symptoms of those mental illnesses.

According to the Substance Abuse and Mental Health Services Administration, between 2008 and 2010, 12% of teenage girls between ages 12 and 17 suffered from a major depressive episode, three times higher than the rate of their male counterparts (Bine, 2013). When taking into consideration that 2010 was the year Tumblr experienced a massive boom in popularity, growing from millions of pageviews a month to billions, as well as the fact that 56% of Tumblr users are female, this statistic is disturbing (Tumblr Blog Network, n.d.). Although we cannot draw a direct causal link between viewing these images on Tumblr and developing a mental illness, or symptoms of one, the implications are dangerous, and Tumblr users should proceed with caution.

To Have Mental Illness

While romanticization of mental illness on Tumblr can undoubtedly have a negative impact on its users, I believe that the more significant damage is that which has been inflicted on those who already suffer from mental illness and turn to Tumblr for help.

Take, for example, Savannah Brown, a 20-year-old YouTuber who went viral online for her slam poem, "What Guys Look For In Girls," which currently has nearly 6 million views. Savannah uses her YouTube channel and her poetry to educate the public on mental illness and feminism. Her bubbly personality shines through the screen on each of her weekly vlogs, but in one video, titled "romanticization of mental illness," she admits to having struggled with eating disorders in the past and turning to Tumblr for support. She details days of scrolling through Tumblr, joining communities of girls with eating disorders and searching for images tagged "pro

ana" (pro-anorexia) to look at skinny girls and tips on self-induced vomiting. She recalls how easy it was to turn anorexia into something "beautiful, pure, something you'll only achieve if you have enough control" (Brown, 2016). Instead of discovering a community of support and understanding on Tumblr, she found people who were perpetuating false images of living with an eating disorder and encouraging the damaging habits she was trying to leave behind.

And herein lies one of the most pressing issues with romanticization of mental illness on social media: its real-life impact. For many people who struggle with mental illness, constantly being surrounded by images that emphasize the beauty in their struggle can be detrimental in that they may no longer want to get better. Being submerged in photos of thin, beautiful girls only motivated Savannah to continue her self-destructive behavior, rather than giving her a reason to seek help. This can be the case for many others with mental disorders—Tumblr can be a source of affirmation rather than assistance.

Again, we invoke the idea of the echo chamber. This constant, repetitive, and immersive exposure to aesthetically-pleasing, romanticized images makes Tumblr harmful to those with mental illnesses. Once a mental illness and its symptoms, such as cutting or self-starvation, have been normalized through its constant presence on social media, they become justifiable to those who practice them. Also, as Savannah states in her video, this normalization is particularly harmful because it creates a misconception of what a mental disorder is (Brown, 2016). Through Tumblr, social anxiety is made cute and endearing, stumbling over your coffee order or being too shy to raise your hand in class; obsessive-compulsive disorder is cleaning your room once a week and washing your hands often (Brown, 2016). Savannah claims that many Tumblr users have these false ideas of what a mental illness is, and as a result, it can be difficult for those who really have anxiety or obsessive-compulsive disorder to seek help and talk to others about their struggles (Brown, 2016). They may open up to someone about struggling with anxiety, only to be told that it is normal, everyone has anxiety, and to just "suck it up and deal with it" (Brown, 2016). Not only can this lead to a sense of isolation caused by no one truly understanding their struggle with anxiety, but could also cause this person to believe that, because everyone else is seemingly struggling with the same mental illness, there is no need to seek help.

Savannah also brings up another important point about how romanticization of mental illness can negatively impact not only individuals with mental illnesses, but the mental illness community as a whole, albeit in different ways depending on the specific mental illness. She points out that Tumblr creates a hierarchy of mental illness, with anxiety and depression at the top, viewed as "cute" and "trendy," but schizophrenia at the bottom, seen as "scary" and "weird" (Brown, 2016). Interestingly, Savannah's assessment of a hierarchy of mental illness highlights an older discourse in the mental illness community. The Diagnostic Hierarchy of Psychiatric Disorders is a method of psychiatric diagnosis that argues that certain diagnoses lower on the hierarchy should not be made if other diagnoses higher on the hierarchy are present (Diagnostic Hierarchy, n.d.). The hierarchy consists first of mood disorders, such as depression, anxiety, and bipolar disorder, then psychotic disorders, such as schizophrenia. The theory states that if a person presents with a symptom of a psychotic disorder, such as hearing voices, they should not be diagnosed with a psychotic disorder until all mood disorders have been ruled out (Diagnostic Hierarchy, n.d.). Although this is simply one method of diagnosis, it reveals some inherent prejudices in mental illness that have evidently made their way into mainstream public discourse, with

mood disorders being easier to diagnose or handle than psychiatric disorders.

The normalization or preference of only certain mental illnesses can lead to the idea that some mental illnesses are more acceptable than others, thus leading to more stigma against "undesirable" mental illnesses, such as schizophrenia. This can mean more isolation of people with these disorders, and thus make these people less likely to seek help.

To Understand Mental Illness

In the two previous groups, neurotypical Tumblr users and the mental illness community, Tumblr functions an echo chamber, capturing negative feelings and thoughts and bouncing them off onto others. Now, I will take a step outside of Tumblr to illustrate that Tumblr is actually a microcosm of how society itself is an echo chamber, and the consequences of this large-scale echo chamber on society's views of mental illness.

Romanticization of mental illness functions in society by altering societal views on mental illness and can lead to even more misunderstanding surrounding mental health. Romanticization is a new kind of stigma against mental illness, not unlike the "mad murderer" trope or fear-mongering techniques of traditional media decades ago. Although romanticization is on the other end of the spectrum from traditional stigmatization, portraying mental illness positively instead of negatively, it is still a misrepresentation and distorts the public opinion of what a mental illness is. By idealizing mental illness, social media could cause as much harm as other types of media have in the past. Romanticization undermines and trivializes the very real struggles of those with mental illnesses by making them look beautiful and seductive, a superficial identity that can be shed at any moment. Unfortunately, the reality is not so simple, and while those who romanticize mental illness may be able to shed it like a fur coat and hang it up in their closet until they want it again, those who suffer from mental illness cannot do the same. This misrepresentation of what it means to be mentally ill prevents society from truly understanding mental illness, which stagnates progress. In this sense, society is functioning as a large-scale echo chamber, creating and perpetuating incorrect, damaging images of mental illness and allowing these ideas to bounce around, while barring entry to new or progressive models of mental illness.

Stepping back even further, we note that the echo chamber has its roots in a much older, established rhetoric surrounding disability—the Charity Model. The Charity Model of disability is the very common depiction of disabled people as victims in need of pity and sympathy from the rest of society (Garland-Thomson, 2001). This view of disability as an impairment that leads to suffering can be disempowering in that those with disabilities are made out to be damsels-in-distress, in need of rescuing by able-bodied "heroes," who are consequently put on a pedestal for coming to the rescue of those less fortunate. Eventually, the perpetuation of this model of disability can lead to decreased self-esteem of the disabled community and a heightened expectation of the rest of society to step in on their behalf, as well as an expectation that disabled people should be grateful toward their able-bodied counterparts.

This model is the foundation upon which the echo chamber is built. Romanticization on Tumblr inherently supports the Charity Model of disability in an interesting way. While the act of romanticization itself heightens mental illness through glorification, what defines the Charity Model is the creator's intent. In making these images where mental illness is beautiful but sad, embodied by pretty girls who need to be saved from themselves, Tumblr users are actively seeking pity from their followers, and thus invoking the Charity Model of disability. Glancing at

the tags under pictures of romanticization on Tumblr highlights this sentiment—tags such as "numb" and "empty" try to invoke sympathy in the eyes of the viewer. Although these Tumblr users may not be familiar with the Charity Model of disability, they are seeking to be depicted in the exact image the Charity Model provides—that of the pitiable victim.

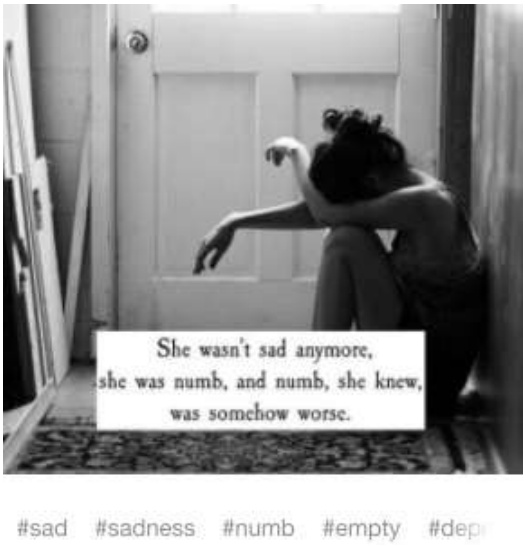

Fig. 2. *A picture originally posted on Tumblr, taken from a therapy website. The photo is a black-and-white image of a girl hunched over on the floor, with overlain text reading "She wasn't sad anymore, she was numb, and numb, she knew, was somehow worse." Below the pictures are the words and phrases the user tagged this photo with, including "sad," "numb," and "empty."*

This deliberate invocation of the Charity Model of disability can have consequences on society's view of the disability community. This model places those with mental illness below neurotypical people in order to generate the pity and attention these users seek. In placing themselves below the rest of society, these Tumblr users are inadvertently giving society a kind of upper hand, a position of superiority from where society can look down upon and further stigmatize the mentally ill. Thus we return to our idea of misunderstanding mental illness and stagnating progress. This is even more problematic when considering that the emotions of some of these Tumblr users, as mentioned in a previous section, may not even be symptoms of a mental illness, but instead are products of the echo chamber that is Tumblr.

An Echo Begins with a Shout into the Darkness

Is perception of mental illness now better than it was a decade ago? Society began on one side of the spectrum, viewing mental illness as terrifying and detestable, and has now slid over completely to the other side, where mental illness is something to be desired. Romanticization may initially seem better than stigmatization because it leads to normalization and some level of acceptance, whereas previous stigmatization only led to isolation for the mental illness community. However, I argue that romanticization is just another, newer form of stigma, in that it misrepresents mental illness and turns it into something that can be exploited by society at the expense of the mental illness community. The true question now is, can we portray mental illness in the media in a way that is not feared, pitied, or fetishized? Is there a middle ground, where mental illness exists without ties to psychotic killers or pretty pictures? While I am currently unsure what this middle ground would look like, I am certain that it is achievable. For society to be able to reach this plane of co-existence with the mentally ill, the issue of romanticization needs to be brought into the light and taken seriously, both by members of the mental illness community and society as a whole. By raising awareness of the issue, by opening up these isolated echo chambers on Tumblr to the rest of the world and bringing in new perspectives, we can create echoes of our own—positive echoes that reverberate

messages of acceptance and equality across neurodiverse communities.

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Mental Health in the Classroom: A Review of School-Based Interventions to Prevent Depression

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Depression is one of the most common mental disorders among children and adolescents. School-based interventions designed to prevent the onset of depression may reduce the prevalence of depression in youth. This paper reviews literature on the effectiveness of school-based depression prevention interventions. Traditionally, research on school-based depression prevention interventions has focused on prevention interventions based on cognitive-behavioral therapy (CBT). These interventions often target risk factors for depression, teaching youth to manage negative thoughts and cope with stressful life events. Recent prevention interventions have incorporated lessons from positive psychology. These interventions often target protective factors, teaching youth to cultivate gratitude, optimism, and mindfulness. We discuss the similarities and differences between CBT-based interventions and positive psychology interventions and examine the evidence behind each type of intervention. Future research is needed to determine which type of intervention is more effective, identify moderators for each type of intervention, and test interventions that integrate the two approaches.

For many years, clinical psychology researchers have attempted to identify risk factors for mental illness. Risk factors, such as stressful life events, increase the probability of developing mental health problems (Hjemdal, Vogel, Solem, Hagen, & Stiles, 2010). Risk factors for developing mental health problems can be biological (e.g. genetic predisposition and gender) or psychosocial (e.g. stressful life events such as familial conflict). More recently, psychologists have attempted to identify protective factors. Protective factors decrease the probability of developing mental health problems, often by promoting resilience. Resilience has been defined as "the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances" (Howard & Johnson, 2000, p. 321). Martin and Walsh (2006) developed a model of resilience with five components: self-efficacy, planning, control, composure, and persistence. Hjemdal et al., (2010) found that high scores on a self-report resilience questionnaire correlate with low scores on measures of depression and anxiety. Because resilience is negatively correlated with depression and anxiety, some interventions in children and adolescents have been designed to foster resilience in order to prevent the development of mental illness.

Some preventative interventions are universal, designed to reach all students. Others are targeted towards individuals at risk of developing depression. Universal interventions tend to be relatively light-touch, whereas targeted interventions are often more intensive (Sanders & Kirby, 2014). Both universal and targeted preventative interventions for depression in youth are particularly important for several reasons. First, depression is a relatively common disorder. Lifetime prevalence estimates for youth depression range from 10-20% (Mash & Wolfe, 2015), but fewer than 20% of kids and adolescents with depression receive treatment (Merry et al., 2012). Fortunately, universal school-based interventions have the potential to reach all school-aged youth. Additionally, prevention interventions can reach youth before they develop clinical depression. This point is particularly important because youth depression is difficult to treat; evidence-based interventions for youth with clinical depression tend to have low effect sizes. A meta-analysis by Weisz, McCarty, and Valeri (2006) found that evidence-based psychotherapies for youth depression have a mean effect size of $d = .34$, indicating a small effect of evidence-based psychotherapies for children with depression. The fact that current depression therapies for clinically diagnosed youth show only a small effect size demonstrates the importance of preventing the onset of depression in youth. Prevention interventions may be particularly valuable because they have the potential to reach youth before they develop clinical symptoms.

Preventative interventions offer specific advantages when implemented in school settings. Chodkiewicz and Boyle (2016) pointed out several potential advantages of school-based interventions. First, since children are mandated to attend school, interventions in school can reach many children. Second, interventions in schools can draw on existing resources such as teachers, guidance counselors, and physical space. Third, children are accustomed to learning in school, which may improve their ability to learn and retain mental health lessons taught in schools. Fourth, children encounter many of their stressors and emotionally significant experiences in school, making school a natural setting in which they can practice the skills they learn. Since school-based interventions have many theoretical advantages, it is important to assess the effectiveness of these interventions.

This paper reviews the effectiveness of school-based interventions designed to prevent the onset of depression. We begin by reviewing interventions based on cognitive behavioral therapy (CBT) principles. CBT interventions tend to target risk factors for depression, often through a focus on changing unhealthy thoughts and behaviors. Then, we review positive psychology interventions. Positive psychology interventions tend to target protective factors, often with a focus on increasing positive thoughts and behaviors. We conclude with recommendations for future research.

CBT-Based Interventions

Many interventions designed to prevent depression teach principles from CBT. CBT conceptualizes mood disorders as an interaction between thoughts, behaviors, and feelings. Numerous randomized controlled trials (RCTs) have demonstrated the effectiveness of CBT (see Weisz et al., 2017). Traditionally, many interventions designed to prevent depression taught CBT principles to participants (Spence & Shortt, 2007). In a recent meta-analysis of depression prevention programs for children and adolescents (Stice, Shaw, Bohon, Marti, & Rohde, 2009), the majority of studies reviewed were CBT-based interventions. This meta-analysis found that these prevention programs showed small effects on depression at post-intervention ($r = .15$) and follow-

up (r = .11) time points. Examples of CBT-based depression prevention interventions include the Resourceful Adolescent Program (Shochet et al., 2001) and the Adolescent Coping with Stress Course (Clarke et al., 2001). Both interventions were school-based group interventions that taught students how to challenge negative thoughts (Clarke et al., 2001; Schochet et al., 2001). Additionally, the Resourceful Adolescent Program taught students to recognize strengths, build support networks, and avoid conflicts (Shochet et al., 2001).

Though there are several CBT-based intervention programs, one of the most widely tested CBT-based intervention programs is the Penn Resiliency Program (PRP). The PRP is a school-based intervention which consists of two components: a cognitive component and a social component (Jaycox, Reivich, Gillham, & Seligman, 1994). During the cognitive component, children are taught how to challenge negative beliefs, adopt healthy explanatory styles, and make fewer pessimistic attributions. During the social component, children practice perspective-taking, coping with family conflict, and seeking social support.

While some studies on the PRP are promising, some attempts to replicate its effects have often been unsuccessful. The initial RCT on the PRP found that participants (fifth and sixth grade students; M_{age} = 11.37) in the intervention group showed decreased depression symptoms at 6-month and 2-year follow-up evaluations (Gillham, Reivich, Jaycox, & Seligman, 1995). While the sample in this study was predominantly Caucasian, Cardemil, Reivich, and Seligman (2002) found the PRP was also successful in Latino youth. Notably, this study found strong effect sizes for children who initially showed high levels of depressive symptoms (d = 0.90) at 6-month follow-up and children who initially showed low levels of depressive symptoms (d = 0.79) at 6-month follow-up. However, the PRP was not successful in African American youth, suggesting that race may be an important moderator for the PRP (Cardemil et al., 2002). More research is needed to identify why race moderates the effect of the PRP. Additionally, some studies suggest that the PRP does not show significant effects: even in white and Latino youth. An RCT by Pattison and Lynd-Stevenson (2001) found that the PRP did not prevent depression in a sample of Australian students aged 9-12. A somewhat recent meta-analysis even found that the PRP does not perform better than active control conditions (Brunwasser, Gillham, & Kim, 2009).

A review by Spence and Shortt (2007) offers explanations for the inconsistency in these results. This review evaluated several studies testing the effectiveness of the PRP and similar CBT-based prevention interventions in schools. The review reported that methodologies of the studies varied widely, and few were able to fully meet the standards set forth by the scientific community. There were a few specific critiques of this research. For instance, 10 of the 12 reviewed interventions used a wait-list control. This type of control is unable to account for potential placebo effects, which may artificially inflate the effect of an intervention. One of the studies including an active control did not show statistically significant effects (Pattison & Lynd Stevenson, 2001), while the other demonstrated a significant but small effect on one of two measures of depressive symptoms (Merry, McDowell, Wild, Bir, & Cunliffe, 2004).

Additionally, evaluations of the PRP and similar interventions have varied widely in their sample size. It may be the case that a small yet statistically significant effect size exists but it can only be detected with a large enough sample. Having a sufficient sample size is particularly important when evaluating the effects of universal interventions, which tend to have relatively small effect sizes.

However, only two of the 12 studies (Sheffield, Goteti, & Wood, 2006; Spence et al., 2003) in this review had a sample size of over 800, the sample size necessary to detect an effect size of .1 with a power of .8 and an alpha level of .05. Another issue is that studies employed different types of measures to evaluate depressive symptoms; some only used child-report questionnaires, some used a mix of child-report, parent-report, and teacher-report questionnaires, and some used clinical interviews. Finally, the studies were performed on different populations, and findings of each study may not generalize across populations. For instance, the Pattison and Lynd-Stevenson (2001) study was conducted in rural school districts, and its findings may not generalize to urban schools. In order to address these concerns, future studies should a) use active control groups, b) conduct power analyses to identify ideal sample sizes, c) attempt to receive depression measures from multiple informants, and d) clearly report on the population in which the intervention is tested.

The difference between efficacy research and effectiveness research may also explain why interventions like the PRP fail to replicate their effects. Efficacy studies evaluate interventions in controlled lab-based settings. Effectiveness studies evaluate interventions in realistic contexts like schools and clinics. A meta-analysis by Weisz, Kuppens, Eckshtain, Jensen-Doss and Hawley (2013) showed that effect sizes in efficacy trials for youth and adolescent psychotherapies are far higher than their effect sizes in real-world settings. There are several reasons why this may occur in prevention research. For instance, efficacy studies are able to exclude certain participants. In real-world settings, participants with varying levels of symptomology may all be in the same classroom. Moreover, efficacy studies are better able to examine treatment fidelity. If a researcher's graduate students are performing an intervention, they may have incentives to stick with the protocol. However, when teachers or school counselors are asked to deliver interventions, they may not fully abide by the treatment.

Financial and logistical problems may also arise when lab-based interventions are moved to school districts. It may be the case that school districts do not invest the adequate amount of time or resources when they are tasked with delivering or accommodating these prevention interventions. Stallard (2013) believes that schools may not always be suited to effectively deliver interventions due to "contextual factors such as compatibility with organizational objectives and priorities, perceived relevance, programme flexibility and fit within existing structures" (p. 61). Because of these limitations, CBT-based prevention interventions often need to be modified in order to be useful in real-world settings. For instance, it may be important to make interventions shorter and more flexible to accommodate for time constraints. Additionally, it may be useful to track fidelity to the interventions when school officials deliver the intervention. In order to maximize effectiveness, it will be important for scientists to accommodate for the differences between lab-based efficacy trials and school-based effectiveness trials.

Positive Psychology Interventions

Past depression prevention research has overwhelmingly focused on applying CBT principles. More recently, some scientists have argued that clinical psychology could benefit from findings in positive psychology (Wood & Tarrier, 2010). The positive psychology movement focuses on improving general wellbeing and functioning in non-clinical populations. It seems quite possible that new interventions developed to improve positive feelings, behaviors, and cognitions could also prevent the onset of depression. However, since wellbeing is

defined by more than the presence or absence of depression (Sin & Lyubomirsky, 2009), there may be ways to improve wellbeing without reducing depression.

However, meta-analytic findings support the view that positive psychology interventions improve both well-being and depression. A meta-analysis included studies comparing an intervention "aimed at increasing positive feelings, positive behaviors, or positive cognitions" to a control group (Sin & Lyubomirsky, 2009. p. 469). The interventions varied considerably in their duration and content. Some interventions lasted just one day, whereas others lasted for multiple months. While the content of the interventions also varied, many of them included mindfulness activities, gratitude journaling, and positive writing exercises. The meta-analysis found that these positive psychology interventions successfully decrease depressive symptoms (r = .31) and improve well-being (r = .29) relative to control groups. These interventions demonstrated weak-to-moderate effects, comparable to the effects of interventions for clinical depression in youth (Weisz et al., 2013). Although the effect sizes of positive psychology prevention interventions mirrored those of clinical interventions, positive psychology prevention interventions are often much cheaper and easier to implement in schools than clinical treatments for depression (Chodkiewicz & Boyle, 2016). A more recent meta-analysis of positive psychology interventions also found small but significant effects on subjective well-being (d = .34), psychological well-being (d =. 20), and depression (d = .23) (Bolier et al., 2013). Many of the interventions in this meta-analysis included lessons on goal-visualization, positive self-statements, gratitude journaling, and acts of kindness. An example of an included intervention is the "Rehearsal of Positive Feelings Statements" intervention (Lichter, Haye, & Kammann, 1980), which showed a moderate effect on depressive symptoms (r = .50).

Notably, neither of the meta-analyses focused on school-based prevention interventions. Due to the unique differences between schools and other settings (Chodkiewicz & Boyle, 2016), positive psychology prevention interventions may have different effects in schools. Currently, there are a few positive psychology interventions that are known to work in school settings. Froh, Sefick, and Emmons (2008) found that gratitude interventions on 6th and 7th grade students (M_{age} = 12.17) successfully improve self-reported gratitude, optimism, subjective well-being, and school satisfaction (effect sizes ranged from small to moderate). Participants in the experimental group were told to write down up to five things for which they were grateful or thankful. Gratitude interventions may be especially valuable due to their low cost and low need for supervision. Therefore, gratitude interventions may be more scalable than CBT interventions, which often require trained and experienced clinicians. Mindfulness interventions have also been tested in school settings. Schonert-Reichl et al., (2015) found that MindUP, an intervention designed to increase attentive listening and mindfulness, reduced depressive symptoms in elementary school students. MindUP includes a mix of sensory lessons (e.g., mindful tasting/smelling), cognitive lessons (e.g., perspective-taking), and gratitude exercises. Recipients of the mindfulness intervention reported greater empathy, optimism, emotional control, and lower depressive symptoms compared to students in an active control group (d = .55 for all social, emotional, and behavioral outcome measures).

Some interventions attempt to change an entire school system—not just individual classrooms. In these interventions, engaging teachers and administrators is seen as important in order to achieve optimal outcomes. Shoshani and Steinmetz

(2014) hypothesized that teachers who used positive psychology skills in their own lives would be better equipped to teach these skills to students. In their intervention, teachers were trained to deliver lessons in six key areas that are known to improve subjective well-being: positive emotions, gratitude, goal fulfillment, optimism, character strengths, and positive relationships. For instance, for the gratitude component, teachers were taught to instruct students to keep a gratitude journal. For the character strength training, teachers were told to have students make a list of strengths and identify new ways that they could apply a strength over the course of a week. Students in the intervention school reported increased self-esteem, self-efficacy, and optimism compared to students in a similar school who did not receive the intervention. Notably, depressive symptoms also improved among students in the intervention condition. The improvements were small yet statistically significant at a two year follow-up (d = 0.18).

Implications for Future Research

A review of the existing literature on preventive interventions for depression provides several insights for future directions. First, the distinction between efficacy and effectiveness should be taken into account when conducting future research on these interventions. Interventions that were initially tested in controlled lab settings, such as CBT interventions, may require significant modifications to succeed in school settings. Scientists should consider potential constraints and challenges that may result when they move their lab-based interventions into school settings (see Rohrbach, Grana, Sussman, & Valente, 2006). For example, scientists should be aware that schools may have less time and resources to devote to intervention delivery and students may experience more distractions in school than in a lab setting. To account for these concerns, scientists may wish to shorten the amount of content in school-based interventions. Additionally, school clinicians may require guidance and support as they learn a new treatment. Therefore, scientists may wish to provide supervision for school clinicians to ensure that they are able to properly understand and implement the evidence-based intervention.

Future research may also wish to test new kinds of CBT-based interventions. Thus far, research using CBT principles to prevent depression has largely been dominated by research on the PRP. Because past trials of the PRP have not outperformed active control groups (Brunwasser, Gillham, & Kim, 2009), non-CBT approaches may offer useful alternatives. On the other hand, it is plausible that new prevention interventions could teach CBT skills in ways that differ from the approach taken by the PRP. For instance, CBT skills have been used in the FRIENDS for Life intervention (see Barrett et al., 2006). The FRIENDS for Life program is a 10-session CBT-based program delivered by classroom teachers to sixth and ninth grade students during health class. Although the skills taught by the FRIENDS for Life program and the PRP are similar, the FRIENDS for Life program differs from the PRP in several important ways. For instance, the FRIENDS for Life sessions are held during school, while the PRP sessions are held after school. As a result, it may be easier for teachers and students to attend FRIENDS for Life sessions. Additionally, all of the FRIENDS for Life sessions are led by school teachers while some PRP sessions are led by psychology graduate students. Therefore, the FRIENDS for Life intervention may be more scalable. The FRIENDS for Life program also includes training sessions for parents meant to help them support their children. Additionally, training to deliver the FRIENDS for Life program only lasts one day, while training to deliver the PRP lasts several

days. For this reason, the FRIENDS for Life program may be more scalable and logistically feasible.

Future research may also wish to continue testing new types of positive psychology interventions. Importantly, positive psychology interventions seem to show promising results in classroom settings. A few studies have even evaluated the effect that these interventions have on depressive symptoms (e.g., Shoshani & Steinmetz, 2014). Once enough studies are conducted, meta-analyses may be able to determine the preventative effects of these interventions. It remains unclear if positive psychology interventions work best in at-risk students or healthy students. Meta-analytic findings suggest that depression prevention programs for youth are most effective when selective rather than universal, but it is unknown whether this finding applies specifically to positive psychology interventions (Stice, Shaw, Bohon, Marti, & Rohde, 2009). Future research could evaluate universal positive psychology interventions (those that are given to all students) against targeted positive psychology interventions (those that are given to students who possess several risk factors or symptom elevations).

Additionally, future research could identify which specific positive psychology interventions are most effective. Future research may wish to compare gratitude interventions against mindfulness interventions and character strength interventions. If intervention scientists better understand the positive psychology lessons that are most effective, they may be able to prioritize these lessons in future positive psychology interventions. Finally, no studies have directly compared positive psychology prevention programs to CBT-based prevention programs. A direct comparison between the two types of interventions may allow scientists to assess which kind of intervention is more effective at preventing youth depression. It is possible that CBT interventions are more effective for certain populations and settings, while positive psychology interventions are more effective for other populations and settings. For example, because CBT-based prevention interventions draw from CBT treatments for clinical populations, CBT-based prevention interventions may be more effective for youth at greater risk of developing depression. Positive psychology prevention interventions may be more effective in populations in which mental disorders are stigmatized. In communities where mental disorders are stigmatized, people may be more likely to engage with interventions that emphasize "positive" content (e.g., gratitude) than interventions which emphasize "negative" content (e.g., challenging negative thoughts). In some communities, it may be more socially acceptable to participate in programs centered on gratitude and optimism than programs centered on distorted thoughts and behaviors.

Lastly, few studies of interventions targeting depression use measures of resilience. Future research may use the Resilience Scale for Adolescents (Hjemdal et al., 2006) and other measures of resilience to see if changes in resilience are responsible for changes in depression. Additionally, future research could examine if certain subcomponents of resilience are most influential. Identifying these resilience mediators would allow scientists to better understand why their interventions work and which components of their interventions are most important to include in future interventions. Currently, few studies measure the acquisition of skills targeted by interventions (e.g., gratitude, optimism). This makes it particularly difficult to compare different interventions or to conduct meta-analyses evaluating the effectiveness of positive psychology interventions. Scientists studying positive psychology may wish to establish certain

measures as norms so the field can identify which interventions outcompete others.

Conclusion

School-based mental health interventions have the potential to expand the reach of mental health services. In order to reduce youth depression, schools, researchers, and policymakers may be able to draw from CBT-based interventions and positive psychology interventions. Although these types of interventions differ in their approaches, both may be powerful tools to improve youth mental health. Some students may benefit more from traditional cognitive behavioral approaches, teaching students how to challenge negative beliefs, reach out for support, and cope with challenges. Other students may benefit more from newer positive psychology approaches, aimed at enhancing gratitude, mindfulness, optimism, and other protective factors. Future interventions may even be able to integrate the most important components of both kinds of interventions.

About the Authors

Akash Wasil is a rising senior at Harvard University studying psychology with a strong interest in global mental health. He has performed research with the Harvard Lab for Youth Mental Health and the Global Mental Health Lab at Columbia University, and he hopes to pursue a PhD in clinical psychology. Akash has served as a peer counselor for ECHO (Eating Concerns Hotline and Outreach), a teaching fellow for Legal Outreach, an editor for the Harvard Political Review, and a board member of Harvard Effective Altruism. In his free time, Akash enjoys listening to Broadway musicals (especially Book of Mormon and If/Then), watching professional StarCraft II matches, and gratitude journaling. One time, Akash even made a meme that got over 500 likes. For years, Akash believed that he did not like the taste of chocolate. He recently realized that he could not resist the soul-enriching goodness of Burdick's hot chocolate.

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Skilled and Aware: The Effect of State Humility on Self-Judgement Accuracy

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While it has been long posited that humility involves a higher self-judgement accuracy, there is no existing empirical evidence to support this proposition. In this study, participants were assigned to humility or neutral conditions and completed a logical reasoning task. Subsequently, they estimated their actual performance on the task (independent estimates), and that compared to their peers (relative estimates). Despite non-significant results, trends in the results indicated that the humility condition had higher independent and relative self-judgement accuracy. These results demonstrate that inducing humility can produce greater self-judgement accuracy, thereby underscoring the role of humility in skill learning, goal-setting, and academic performance. Future research can utilize an enduring state humility manipulation and explore possible mediators of the relationship between humility and self-judgement accuracy.

Recent attention on positive psychology has led to a spike in research on positive emotions such as humility. Chancellor and Lyubomirsky's (2013) definition of humility comprises five "hallmarks": 1) a secure and accepting identity, 2) freedom from distortion, 3) openness to new information, 4) other-focus, and 5) egalitarian beliefs. Firstly, a secure and accepting identity entails holding a robust self-view that does not fluctuate exaggeratedly in response to self-esteem attacks (Chancellor & Lyubomirsky, 2013). The individual is certain of his personal beliefs and tolerant of his own weaknesses (Campbell et al., 1996). Next, freedom from distortion means being able to handle self-relevant information in a neutral manner (Tangney, 2000). An individual free from distortion is cognisant of his own capabilities and limitations, engaging in neither excessive self-disparaging nor self-aggrandising behaviour (Templeton, 1998; Tangney, 2000; Peterson & Seligman, 2004). Thirdly, openness to new information involves being receptive to both positive feedback and criticism, as well as a willingness to adapt to change (Tangney, 2000). Other-focus entails focusing one's attention and effort on others instead of oneself (Tangney, 2000; Peterson & Seligman, 2004). Lastly, holding egalitarian beliefs translates to valuing others as much as the self, and treating them fairly (Chancellor & Lyubomirsky, 2013).

Most of the research, however, has focused on defining and measuring humility as a dispositional construct (Rowatt et al., 2006; Davis, Worthington, & Hook, 2010; Elliott, 2010; Davis et al., 2011). Resultantly, state humility and its psychological significance lack empirical support. Addressing this gap is crucial to advance beyond the current correlational data to causal relationships involving humility, thereafter informing our decision to foster humility as a beneficial quality in everyday life.

State Humility

Beyond disposition, humility has been theorised by several academics as a state, and even as an orientation (Tangney, 2000; Kupfer, 2003). Various key advantages in studying state humility have also been identified: firstly, it is possible that not all components of humility are always present, perhaps due to the nature of the events encountered (Chancellor & Lyubomirsky, 2013). Therefore, moment-by-moment analysis can allow researchers to discern discrete precedents and causes of humility, thereby facilitating a better understanding of how humility is associated with other related emotions such as modesty and gratitude.

More importantly, it has been proposed that people high in trait humility simply experience state humility in a more frequent and consistent way (Ruberton, Kruse, & Lyubomirsky, 2016). This implies that increasing momentary feelings of state humility in individuals who lack trait humility can potentially enable them to experience the benefits of trait humility (Ruberton et al., 2016). Such benefits include socially desirable and prosocial behaviours, improved interpersonal relationships, better academic outcomes, and strong leadership (Ashton & Lee, 2008; Hilbig & Zettler, 2009; LaBouff, Rowatt, Johnson, Tsang, & Willerton, 2012; Davis et al., 2010; Chancellor & Lyubomirsky, 2013; Morris, Brotheridge, & Urbanski, 2005; Nielsen, Marrone, & Slay, 2010). Therefore, complementing trait humility research with a state-based approach is necessary to enable researchers to address essential theoretical and methodological questions surrounding humility (Kruse, Chancellor, & Lyubomirsky, 2017).

Specifically, the current study aimed to demonstrate the relationship between state humility and self-judgement accuracy (SJA). There is a lack of empirical evidence that state humility involves the ability to make accurate judgements of the self – an assumed central attribute of trait humility (Chancellor & Lyubomirsky, 2003; Tangney, 2000). Likewise, self-judgement is a largely under-studied construct, especially in connection with positive emotions. Yet, it is critical in the real-world; for instance, in promoting lifelong learning (Gordon, 1992; Ward, Gruppen, & Regehr, 2002). Recognising the potential constructive implications of a causal relationship between state humility and SJA, the current study investigated these two concepts together.

Self-Judgement Accuracy (SJA)

SJA is the ability to accurately assess one's personal features, such as strengths and weaknesses (Ward et al., 2002). In our study, SJA scores were operationalised as the absolute difference between participants' estimated and actual abilities. A wider SJA score indicates a substantial difference between one's actual and perceived abilities, either in the form of an underestimation or overestimation. A narrower SJA score indicates little difference between one's actual and perceived abilities, indicative of astute self-judgement skills.

Ideally, individuals should strive for narrower SJA scores, crucial for setting realistic goals and expectations in life. Unfortunately, this is not the case in reality. Research on SJA and its associated concepts, such as self-assessment, has been bleak: in a meta-analysis of self-assessment in educational settings, Falchikov and Boud (1989) found a mean correlation of only 0.39 between self-assessment and actual performance, concluding that in general, people are poor appraisers of their own achievements. Other studies on specific cognitive capabilities, including mathematical skills and intelligence quotients, similarly demonstrate at best moderate correlations between actual and perceived abilities (Freund & Kasten, 2012; Zell & Krizan, 2014). Typically, people overestimate their abilities and the accuracy of their beliefs (Koehler, 1991;

Moore & Healy, 2008). More surprisingly, individuals are largely unaware of the discrepancies in their appraisals; data has shown that they are thoroughly convinced that their opinions are unbiased and true (Pronin, 2008; Gilovich & Griffin 2010; Hilbert, 2012). These judgement biases exist due to their inherent preferences for positive self-views to safeguard self-worth and perceive oneself in a favourable light (Sedikides & Gregg, 2008; Baumeister, 2010). Individuals often employ positivist strategies such as the self-serving bias and fundamental attribution error in the search for a positive self-construct (Sedikides & Gregg, 2007). Further research has also implicated metacognitive abilities – awareness of one's own thinking – in influencing SJA: those with weaker metacognitive abilities have a larger SJA score and give less accurate estimations of their capabilities (Teasdale, 1999; Kruger & Dunning, 1999).

Humility and Self-Judgement Accuracy (SJA)

In brief, humility confers a greater level of self-awareness, which may aid in overcoming the overestimation trend described above. The relationship between humility and SJA is proposed to be mediated through "actively open-minded thinking" (AOT; Tong & Teo, n.d.). AOT involves amenability to new ideas, including alternative viewpoints, and a strong inclination to allocate cognitive resources to analytically process external material (Baron, 1993; Stanovich & West, 1998). AOT can be observed implicitly in the hallmarks of humility. With a robust self-view and freedom from distortion, individuals experiencing humility are more confident in their own abilities, more likely to process information impartially, and unlikely to allow external material to misconstrue their self-perception (Campbell et al., 1996). Being open to new information also makes such individuals favourable recipients of all forms of feedback, and ideal candidates for flexible thinking (Tangney, 2000; Davis et al., 2010). By deliberately processing new ideas and refraining from employing mental heuristics, AOT facilitates deeper interaction with and understanding of information, as well as a reduced tendency to make improper judgements. Consequently, the previously-mentioned positivist strategies are avoided. From these characteristics, it is likely that experiencing humility would enable individuals to objectively consider and be more aware of information relating to the extent of their abilities. It then follows that more accurate self-assessments are made and the SJA score is narrowed.

The Current Study

Prior research on the posited relationship between humility and SJA is scarce. In 2014, Hilbig, Heydasch and Zettler found that participants who score low on humility and modesty measures tend to overestimate their capabilities. Tong and Teo (n.d.) also concluded that humility predicts greater SJA, and correspondingly, narrower SJA scores. However, these two studies explored humility as a dispositional trait, so no causative inference can be made from their results. Our study thus aims to examine state humility in a manipulated setting, with the goal of establishing a causal relationship between state humility and SJA.

In our study, performance was operationalised by participants' results on a logical reasoning test. As theories suggest that humble individuals make accurate assessments of both their own abilities and that of others', we measured actual performance in two ways (Chancellor & Lyubromisky, 2013). Firstly, the number of questions each participant answered correctly, termed independent actual performance (AP_{indp}), and secondly, the percentile ranking of participants' performance against that of others,

termed relative actual performance (AP_{rel}). Similarly, estimated performance had two subdivisions: participants' perception of the number of questions they answered correctly, termed independent estimated performance (EP_{indp}), and participants' perception of their percentile ranking in comparison to others, termed relative estimated performance (EP_{rel}). Using the above four dimensions, we investigated two forms of SJA – independent self-judgement accuracy (SJA_{indp}) and relative self-judgement accuracy (SJA_{rel}). SJA_{indp} is the absolute difference between AP_{indp} and EP_{indp}, expressing the accuracy of participants' judgement of their individual performance. SJA_{rel} is the absolute difference between AP_{rel} and EP_{rel}, expressing the accuracy of participants' judgement of their performance relative to that of their peers. Studying both SJA_{indp} and SJA_{rel} allows us to explore the self-focus and other-focus elements of humility (Wright et al., 2017).

Based on the above literature, we expect state humility to boost individuals' abilities to process self-relevant information, thereby leading to heightened self-awareness. In turn, they are then more likely to be aware of their own actual capabilities. Thus, inducing humility should lead to more accurate estimations of one's performance the logical reasoning test. By extension, we hypothesise that experiencing state humility will lead to greater independent self-judgement accuracy (SJA_{indp}) and greater relative self-judgement accuracy (SJA_{rel}). Correspondingly, narrower SJA_{indp} and SJA_{rel} scores should be observed.

Method

Participants

This study involved 106 undergraduates (33 males, 73 females) from the National University of Singapore. The age range was 18–25 years old, with a mean age of 21.42 years (SD = 1.96). 82 students (24 males, 58 females) participated for course credits. 24 students (nine males, 15 females) participated on a voluntary basis. Data from 14 participants was excluded because they took over 50 minutes to complete the questionnaire, while data from two participants was excluded as they took less than ten minutes to do the same. Data from one other participant was excluded for failing to complete an essential measure. Ultimately, we analysed data from 89 participants.

Design

Our study used a between-subjects design with one manipulated independent variable – emotional state – with two levels: humility and neutral. The dependent variable was SJA, measured by the absolute difference between students' estimated and actual ratings of their independent (SJA_{indp}) and relative (SJA_{rel}) performance on a logical reasoning test.

Procedure

Students were given a link to an online questionnaire titled "Everyday Decision-Making", accompanied by instructions to complete it in a single 30-minute sitting in an undisturbed environment. Students were then randomly assigned to one of the two conditions: humility or neutral, and tasked to recall a personal humility experience or daily morning routine respectively. In the humility condition, a detailed definition of humility and its associated characteristics was provided, as well as guiding questions such as "What did it feel like to be feeling humility?" After the emotional priming, all students attempted a logical reasoning test and rated their estimated independent and relative performance. They then completed a state humility manipulation check before filling in independent question blocks on social desirability and distractibility. Finally, students provided their demographic information and were thanked for their participation.

Materials

Logical reasoning. The logical reasoning test used was adapted from IndiaBIX (2015), an online educational website which hosts various test banks. Our test contained 18 out of the 20 questions, as one was deemed too convoluted to understand, and the other was a repeated question. The test was structured into different sections according to question-type, with each section preceded by specific instructions. Question-types included identifying the appropriate conclusion, patterns and associations, as well as evaluating argument accuracy. At the end of the test, participants estimated the number of questions they answered correctly out of 18 (EP_{indp}), as well as how they thought they fared relative to their peers, providing a percentile ranking of 1% (lowest) to 100% (highest) (EP_{rel}). Participants also indicated their level of confidence in their estimates, on a scale of 1 (not confident at all) to 100 (fully confident). Additionally, we computed the actual number of questions each participant answered correctly (AP_{indp}) and the actual percentile ranking of each participant when compared against the entire sample (AP_{rel}). These four measures of performance have been used reliably in numerous studies involving self-assessment and metacognition (Ames & Kammrath, 2004; Kruger & Dunning, 1999).

Humility. To measure state humility, we used the 6-item Brief State Humility Scale (α = .85) (BSHS; Kruse et al., 2017) and the seven-item Humility Implicit Association Task (α = .87) (HIAT; Rowatt et al., 2006). The BSHS consisted of three positively-scored statements, such as "I feel that I have both many strengths and flaws." and three reverse-scored statements, such as "I feel that I deserve more respect than everyone else." Participants rated each item on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The HIAT was based on the concept that people who experience humility would be quicker to associate humility-related traits, such as tolerance, with themselves (Rowatt et al., 2006). Again, participants rated each trait on a seven-point Likert scale, with -3 and 3 as the two extremes – for example, intolerant and tolerant respectively. We utilised the above scales for two reasons. Firstly, they were both short yet with high internal consistency and validity, which meant that responses obtained were accurate without risking fatigue effects. For instance, the BSHS correlated significantly with the modesty subscale of the HEXACO Honesty-Humility scale (r = .49), an established measure of dispositional modesty (Kruse et al., 2017). This is a reassuring finding given that modesty is recognised as a related characteristic of state humility (Exline & Geyer, 2004; Weidman, Cheng & Tracy, 2016). Self-reported BSHS also correlated significantly with other-reported BSHS (r = .64), confirming that construct validity was preserved (Kruse et al., 2017). As predicted, the HIAT also correlated negatively with narcissism (r = -.19) and positively with implicit self-esteem (r = .32) (Rowatt et al., 2006). Both the BSHS and the HIAT did not correlate with theoretically-unrelated concepts such as extraversion, indicating high discriminant validity (Rowatt et al., 2006; Kruse et al., 2017). Secondly, the two scales complement each other. Both are implicit measures which circumvent the paradox of self-report – that self-proclaimed humble people inflate their humility levels, while truly humble people understate their humility levels (Davis et al., 2010; Davis et al., 2011; Kruse et al., 2017). By utilising less transparent self-ratings of humility and presenting closely-related attitudes instead of the actual term "humility", participants are less likely to provide fabricated or socially-desirable responses (Banse, Seise, & Zerbes, 2001; Kruse et al., 2017). Thus, recognising the strong psychometric properties and complementarity of both scales, we averaged their combined scores to obtain state humility.

Social desirability. We employed a shortened Marlow-Crowne (1960) Social Desirability Scale (M-C SDS) to check for social desirability bias. Strahan and Gerbasi (1972) constructed a 10-item version of the scale that was found to be reliable and highly correlated with the original M-C SDS (r = .80). Five items are positively-scored, such as "I always try to practice what I preach", while the other five are reverse-scored, such as "There have been occasions when I felt like smashing things." Participants indicated "True" or "False" for each statement.

Results

We conducted one-tailed tests, with the level of alpha of .05, to investigate the effect of state humility on SJA. Due to the exclusion of data, we analysed 40 participants in the humility condition, and 49 in the neutral condition.

We first conducted a paired-samples t-test between AP_{indp} and EP_{indp}, showing that EP_{indp} was significantly higher than AP_{indp}, $t(88) = 2.42$, $p = .009$ (Table 1). Participants' estimated independent scores (M = 11.73, SD = 3.64) were higher than their actual independent scores (M = 10.75, SD = 1.96). Similarly, a paired-samples t-test between AP_{rel} and EP_{rel} indicated that EP_{rel} was significantly higher than AP_{rel}, $t(88) = 2.49$, $p = .006$ (Table 2). Participants' estimated relative rankings (M = 52.63, SD = 21.23) were higher than their actual relative rankings (M = 43.11, SD = 30.26). This means that participants overestimated both their actual ability and their ability in comparison to that of their peers

Table 1

Results of paired t-test between AP_{indp} and EP_{indp}

	AP_{indp}		EP_{indp}			95% CI for Mean Difference			
Scores	*M*	*SD*	*M*	*SD*	n		*t*	*p*	df
	10.75	1.96	1.73	3.64	89	0.18, 1.78	2.42*	.009*	88

* p < .01. AP_{indp}: independent actual performance; EP_{indp}: independent estimated performance

Table 2

Results of paired t-test between AP_{rel} and EP_{rel}

	AP_{rel}		EP_{rel}			95% CI for Mean Difference			
Rankings	*M*	*SD*	*M*	*SD*	n		*t*	*p*	df
	43.11	30.26	52.63	21.23	89	1.91, 17.12	2.49*	.006*	88

* p < .01. AP_{rel}: relative actual performance; EP_{rel}: relative estimated performance

Table 3

Results of independent t-tests between Emotional State and SJA_{indp} and SJA_{rel}

	Emotional State						95% CI for Mean Difference			
	Humility			Neutral						
	M	*SD*	n	*M*	*SD*	n		*t*	*p*	df
SJA_{indp}	2.98	2.35	40	3.18	2.48	49	-1.23, .82	-0.40	.34	87
SJA_{rel}	26.60	19.68	40	33.00	23.35	49	-15.62, 2.82	-1.38	.09	87

SJA_{indp}: independent self-judgement accuracy; SJA_{rel}: relative self-judgement accuracy

State Humility and Self-Judgement Accuracy (SJA)

Additionally, we conducted an independent samples *t*-test demonstrating that there was no significant effect of humility on SJA_{indp}, $t(87) = -0.40$, $p = .34$ (Table 3). Participants in the humility condition ($M = 2.98$, $SD = 2.35$) did not make significantly more accurate judgements of their independent scores than participants in the neutral condition ($M = 3.18$, $SD = 2.48$). Correspondingly, another independent samples *t*-test showed no significant effect of humility on SJA_{rel}, $t(87) = -1.38$, $p = .08$ (Table 3). Participants in the humility condition ($M = 26.60$, $SD = 19.68$) did not make significantly more accurate judgements of their relative rankings than did participants in the neutral condition ($M = 33.00$, $SD = 23.35$). Despite the non-significant results, there was a trend indicating that humility participants had comparatively lower mean SJA_{indp} and mean SJA_{rel} scores, which is indicative of greater SJA_{indp} and SJA_{rel}.

Social Desirability

To check for social desirability effects, we ran two correlations analyses between participants' social desirability scores and SJA_{indp} and SJA_{rel} respectively (Table 4). Social desirability scores ($M = 1.43$, $SD = 0.18$) and SJA_{indp} ($M = 3.09$, $SD = 2.41$) were not significantly correlated, $r(87) = -.008$, $p = .94$. Social desirability scores and SJA_{rel} ($M = 30.12$, $SD = 21.89$) were also not significantly correlated, $r(87) = .16$, $p = .13$. These results indicate that social desirability bias did not significantly skew our results.

Table 4

Results for correlation analysis between Social Desirability and SJA_{indp} and SJA_{rel}

	Social Desirability	
	r	*p*
SJA_{indp}	-.008	.94
SJA_{rel}	.16	.13

SJA_{indp}: independent self-judgement accuracy; SJA_{rel}: relative self-judgement accuracy

Discussion

Despite obtaining predominantly non-significant results, we reproduced the general trend that people tend to overestimate their performance, be it

independent or relative. In line with our hypothesis, we also produced the trend that experiencing state humility leads to greater independent self-judgement accuracy (SJA_{indp}) and greater relative self-judgement accuracy (SJA_{rel}).

Our hypothesis that experiencing state humility would lead to greater SJA_{indp} and greater SJA_{rel} was non-significant. However, comparison of the mean SJA_{indp} and mean SJA_{rel} scores revealed that those experiencing humility did indeed have comparatively narrower SJA scores than those in the neutral condition, i.e. smaller absolute differences between their actual and estimated performance. The trend in this result is potentially indicative of humility participants' more accurate self-judgement skills, as hypothesised. The non-significance was probably due to the small effect size and power of our study – consequences of our small sample size. Future research can include replications of our study with a larger number of participants, potentially increasing the chance of significant results.

At this juncture, it is worth mentioning an underlying assumption of our study: the role of AOT as the basis of our proposed relationship between humility and SJA. While this relationship is theoretically sound, the lack of a scientific consensus on the definition of humility implies that other related traits, such as other-focus, can serve as potential mediators as well. The humility-helpfulness hypothesis states that those experiencing humility are more helpful than those in the neutral condition, as other-focus motivates people to devote more time and attention to those in need (Lee & Ashton, 2004; LaBouff et al., 2012). Amidst helping others, one's awareness of one's personal capabilities to render assistance is enhanced. On the other hand, AOT may also be the sole force acting on SJA because the other hallmarks have no impact, which means that the effects of AOT and humility on SJA would be comparable. Future empirical validation can shed light on the mediating role of AOT between humility and SJA.

Limitations and Further Directions

Despite strong theoretical underpinnings, our humility manipulation was empirically unsound. During the recall humility manipulation, our definition of humility stated "It [Humility] is different from being modest, humiliated or humbled." Mentioning other emotional states may have activated certain schemas in participants and subconsciously misled them into recalling an event unrelated to humility. Indeed, some participants were confused about the distinction between humility, modesty, and feeling humbled. In general, humility is a cognitive state, while modesty is a behavioural style (Graziano, Jensen-Campbell, & Hair, 1996; Sedikides, Gregg, & Hart, 2008; Kruse et al., 2017). Feeling humbled is a descriptor to indicate experiencing humility. Clearly, the statement differentiating the three terms was unnecessarily confusing. Future study replications should rephrase the recall prompt to be less ambiguous. These replications should be conducted in a monitored environment, such that experimenter control can further ensure standardised interpretations and experimental settings.

Secondly, SJA requires individuals to consider both positive and negative feedback of the self, which leads to a higher awareness of limitations in abilities (Chancellor & Lyubomirsky, 2013; Tangney, 2000). In a trait humility study, individuals high in humility would have been able to use past information to guide their estimation on the task. However, this opportunity was not present in the present study, as participants were expected to be aware of their strengths and weaknesses without any previous information or feedback. Moreover, they were required to give an estimation of their performance on the logical reasoning task immediately after completing it. Their SJA was assessed based on the

single-time task and estimation. This distinction appears to support the proposition that certain attributes such as self-awareness are only present in trait humility and not state humility. However, this complication could be resolved by having several test trials in the experiment. Participants can receive feedback after each trial, before attempting the next trial which assesses the same skills with different questions. If participants in the state humility condition are indeed more receptive to feedback and thus better aware of their strengths and limitations, they would show a larger improvement in their SJA – represented by a narrowing of their SJA scores – than those in the neutral condition.

Thirdly, the duration of the effects of experimentally-induced humility is uncertain. This is pertinent as in our study, the logical reasoning task was an intermediate between the recall exercise and the self-awareness questions. Various research has demonstrated that logical reasoning tasks require an exceptionally large amount of attention and cognitive resources (Schmeichel, Vohs, & Baumeister, 2003). It is also known that emotions involve a combination of cognitive and affective processes (Storbeck & Clore, 2008). Given that an individual's total amount of attention and cognitive resources is limited, it then follows that the induced humility may have diminished over time due to interference from the logical reasoning task. In particular, research has shown that the reallocation of attention and cognitive resources can lead to reduced emotional experience (Kanske, Heissler, Schonfelder, Bongers, & Wessa, 2010). In this manner, the reduced effects of induced humility could have affected the SJA of participants in the humility condition, and resulted in a decreased effect size between the humility and the neutral conditions. Future research can thus investigate the duration effects of the state humility recall procedure employed in this study by measuring induced humility immediately after the priming recall exercise, and again at the end of the experiment after the logical reasoning task and self-assessment questions. Other emotion induction procedures such as Velten's (1968) Mood Induction Procedure can also be considered. This involves presenting a self-referent emotive statement before every logical reasoning question, so as to ensure the consistency of induced humility.

Implications

Our study found trends that induced humility produces greater SJA, a finding which has significant theoretical and practical implications. Firstly, the findings support previous theories proposing the conceptualisation of humility as a state, instead of limiting it to a trait (Tangney, 2000; Chancellor & Lyubomirsky, 2013). Secondly, induced humility can possibly promote AOT and greater SJA in individuals, so as to reduce the tendency to self-inflate one's abilities (Koehler, 1991; Moore & Healy, 2008). In turn, this translates into better awareness of one's actual capabilities. Thirdly, state humility can be induced during tasks such as skill learning to elicit its associated positive characteristics of higher self-regulatory abilities, receptivity to positive feedback and criticisms of the self, and conscientiousness (Tong et al., 2016; Tangney, 2000; Exline & Hill, 2012; Johnson, Rowatt, & Petrini, 2011). Moving forward, given that humility can be induced as a state to produce similar beneficial effects, it appears that these positive traits and outcomes are no longer restricted to individuals with high trait humility.

Conclusion

Presently, there remains much potential for research in the field of humility. Although our predictions were not significantly supported, our results demonstrated encouraging trends in line with our hypothesis. Additionally, our findings provide future directions for humility research, such as examining

the mediating role of AOT and the duration effects of state humility manipulation. Findings from our study can also potentially contribute to exploration of self-regulation. Nevertheless, we echo the sentiment of many other papers – humility research can only effectively progress once the fundamental theoretical and methodological issues are resolved. Until further replications have been performed, all results should be interpreted with caution.

About the Authors

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