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COGNITIVE DEBIASING INTERVENTION FOR ASSESSMENT OF PROLONGED GRIEF
DISORDER

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy at Virginia Commonwealth University

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April 2021

Acknowledgements

I would like to extend my gratitude to my advisor and committee chair, Dr. Jared Keeley. Thank you for your valuable mentorship, guidance, and support. You have been an integral part of my success in graduate school, and I am so very grateful to have had your support and encouragement.

I would also like to thank my committee members, Dr. Ashlee Loughan, Dr. Scott Vrana, Dr. Joshua Langberg and Dr. Sarah Kye Price. Thank you for giving your time, valuable feedback, and guidance during this process. I have very much appreciated integrating your perspectives and feedback into this project and having had the opportunity to improve upon my work.

I would also like to thank all my colleagues and friends in the program that provided insight, support, and encouragement throughout this process. Rachel Wallace and Jackee Sadicario, I actually do not know what I would have done without you.

Additionally, I would like to acknowledge the many individuals who have provided me with support and guidance outside of the program, especially my father, Jaber Aslanzadeh and my sister, Aryana Aslanzadeh. Without your love and support I could not have reached this special milestone. Thank for you for always believing in me.

Finally, I would like to thank my partner, Braden Stocks. Thank you for joining me on this journey and feeding me along the way. I love you.

Table of Contents

| | Page |
|--|------|
| Acknowledgements..... | ii |
| List of Tables..... | iv |
| Abstract..... | v |
| Literature Review..... | 3 |
| Bereavement-Related Disorders..... | 3 |
| Clinical Judgment and Decision-Making..... | 7 |
| Cognitive Debiasing..... | 9 |
| Cognitive Errors in Diagnosis, Assessment, & Treatment of Bereavement Disorders...11 | |
| Debiasing Strategies for Prolonged Grief Disorder..... | 16 |
| The Present Study..... | 19 |
| Methods..... | 20 |
| Participants..... | 20 |
| Procedures..... | 21 |
| Measures..... | 22 |
| Statistical Analysis Plan..... | 26 |
| Results..... | 28 |
| Discussion..... | 32 |
| References..... | 43 |
| Appendix..... | 54 |
| Vita..... | 76 |

List of Tables

| | Page |
|--|------|
| Table 1. Bereavement Related Disorders..... | 54 |
| Table 2. Sample Characteristics | 55 |
| Table 3. Diagnostic Accuracy | 57 |
| Table 4. Correlations between bias activation and diagnostic accuracy..... | 58 |

Abstract

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By Farah J. Aslanzadeh, M.S.

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Virginia Commonwealth University, 2021

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Cognitive debiasing is an approach to reducing diagnostic decision-making errors resulting from the misuse of cognitive heuristics and biases. This study built on prior research that has successfully used a multi-modal debiasing approach to reduce diagnostic errors. Clinicians were recruited and randomized into a general presentation on the changes in the stress and trauma section of ICD-11 (including the diagnostic criteria of prolonged grief disorder [PGD]) or the same general presentation plus and a cognitive debiasing intervention for PGD. All clinicians were then asked to diagnose three patient vignettes in which biases/potential decision-making errors were embedded in the text. Results revealed nonsignificant effects of the intervention on diagnostic accuracy. These findings may be related to an underpowered sample, inadequate bias activation, and a ceiling effect. More research is needed to improve upon the methodological limitations of the current study and to optimize potential benefits for clinicians working with the bereaved.

Key words: *debiasing, prolonged grief disorder, decision-making errors*

Cognitive Debiasing Intervention for Assessment of Prolonged Grief Disorder

Despite a long history of treating bereaved individuals and non-normative bereavement responses with psychotherapy, it is only with the development of the fifth edition of the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association; APA, 2013) that a diagnosis encompassing impairing, persistent patterns of grief was included in the diagnostic manual most commonly used among mental health professionals in the United States (First et al., 2018) and a similar disorder has been proposed for international use in the International Classification of Disease (ICD-11; Maercker et al., 2013). While most bereaved individuals struggle but ultimately cope with loss, others experience abnormally elevated distress that causes significant impairment for an atypically prolonged period of time following a loss. This non-normative experience is described as persistent complex bereavement disorder (PCBD) or prolonged grief disorder (PGD). Despite beliefs that the vast majority of bereaved individuals do not experience seriously adverse grief reactions, a recent meta-analysis demonstrated variable prevalence rates across 14 identified studies with 9.8% - 11.0% of bereaved individuals experiencing symptoms consistent with PGD (Lundorff, Holmgren, Zachariae, Farver-Vestergaard, & O'Connor, 2017). However, PCBD and PGD remain diagnoses in need of further research, with the field only recently working to come to agreement on criteria to understand adverse bereavement reactions. Given the various conceptualizations of non-normative grief (i.e., prolonged grief, pathological grief, complicated grief, persistent complex bereavement disorder), it is reasonable to expect that clinicians may have differing thresholds for what they consider to be disordered grief, dictating who does and does not receive intervention.

In addition to utilizing diagnostic manuals and published criteria, clinicians often rely on their clinical judgment in order to make decisions about the appropriateness of a certain

diagnosis or treatment option. While able to assist in making accurate and efficacious determinations, clinical judgment can fall prey to a number of decision-making errors as a result of the misuse of schema-based knowledge, cognitive heuristics, or the development of biases in thinking. There is a large body of literature that illustrates the impact of decision-making errors on diagnosis and treatment decisions (Garb, 1998; Saposnik, Redelmeier, Ruff, & Tobler, 2016). While the field of medicine has used research on the sources of decision-making errors to reduce their effects (Croskerry, Singhal, Mamede, 2013), much less time has been dedicated to research that seeks to illuminate the ways mental health professionals can combat decision-making errors in their own work. A recent review was only able to identify 12 studies that examined the effects of debiasing interventions for mental health professionals (Aslanzadeh, Kleva, Headley, & Keeley, in preparation), while recent reviews of debiasing interventions for medical health professionals included 28 - 68 manuscripts (Graber, et al., 2012; Lambe et al., 2016; Ludolph & Schulz, 2018).

One of the few manuscripts detailing an effective debiasing intervention for mental health professionals was a study conducted by Jenkins and Youngstrom (2016) with the aim of improving diagnostic accuracy and treatment decisions in pediatric bipolar disorder (PBD). This study constructed their intervention by identifying common sources of error when diagnosing and treating PBD. By first isolating these common issues and the decision-making processes likely driving these errors, they then used literature on methods to reduce decision-making errors to construct an educational module providing information on common errors and strategies to reduce them in the diagnosis and treatment of PBD. By considering the underlying issues inherent in the diagnosis and treatment of PBD, Jenkins and Youngstrom created an intervention

with large effects ($d = 1.67$) in improving overall diagnostic accuracy, significantly outperforming a simple presentation of PBD criteria.

Given the historically disjointed field of bereavement related disorders, the present study aims to improve diagnosis and treatment decision-making by improving knowledge of and reducing effects of common cognitive errors which impact diagnosis and treatment of PGD. We assessed the success of implementing a debiasing intervention similar to the disorder specific approach designed by Jenkins and Youngstrom (2016) for PBD. After assessing the literature for common sources of diagnostic and treatment errors in PGD, we identified corresponding strategies which we hypothesized would reduce the incidence of decision-making errors and improve diagnostic accuracy.

Literature Review

Bereavement-Related Disorders

Diagnosing bereavement-related psychopathology has been a challenging task, in large part due to the historical lack of guidelines for diagnosis and treatment. Despite coping with grief and loss being popular topics in the field of mental health, prior to the publication of the DSM-5 bereavement related disorders were not included in the diagnostic manual. Previous editions of the DSM had tried to avoid unnecessarily pathologizing grief by keeping it out of the classification system, citing the need for additional research before designating a diagnosis for bereavement related distress (Shear et al., 2011).

In the absence of a unifying diagnostic construct, a number of conceptualizations of bereavement-related psychopathology were proposed in the literature such as complicated grief (Horowitz et al., 1997), traumatic grief (Prigerson et al., 1999), and prolonged grief disorder (Prigerson et al., 2009). Complicated grief (CG) and PGD have persisted as the most commonly

used terms among researchers, with DSM-5 integrating aspects of PGD and CG to create PCBD. Meanwhile, the ICD-11 plans to include a version of PGD (Maercker et al., 2013). Interestingly, research has shown PCBD and PGD to be distinct from symptoms of depression, anxiety, and stress-related disorders such as posttraumatic stress disorder (PTSD; Maciejewski, Maercker, Boelen, & Prigerson, 2016), but not distinct constructs themselves. When looking across the most recently published diagnostic criteria for CG (Shear et al., 2011), PGD (Prigerson et al., 2009), PCBD (APA, 2013), and PGD for ICD-11 (Maercker et al., 2013), there are notable commonalities with some slight differences (see Table 1 for a summary).

There are several symptoms that are common across all the aforementioned diagnostic criteria including: yearning/longing, sorrow/emotional pain, preoccupation with the deceased, difficulty accepting the death, emotional numbness/being stunned, and bitterness/anger (Nakajima, 2018). When looking at differences across diagnoses, each diagnosis has a different time-related criterion. CG cannot be diagnosed until the individual has been bereaved for at least six months and has symptom duration for at least one month (Shear et al., 2011). Prigerson and colleagues' (2009) proposed duration of six months (PGD) is shared in the ICD-11 proposed PGD diagnosis (Maercker et al., 2013). The duration criterion for PCBD (APA, 2013) is the most restrictive at 12 months required for diagnosis.

Each diagnosis has several symptoms that are unique to its conceptualization of disordered reactions to bereavement. CG defines pathological grief as when “complications derail or impede healing after loss and lead to a period of prolonged and intensified acute grief” (Shear, 2011, p. 105) and has by far the greatest number of possible symptoms. In addition to the previously mentioned shared symptoms across disorder definitions (e.g., yearning, longing, preoccupation with the deceased), CG criteria include a preoccupation with the circumstances of

the death; difficulty in positively reminiscing; self-blame and other maladaptive cognitive appraisal; avoidance of reminders; desire to die (suicidal ideation); difficulty trusting others; loneliness; considering life as empty, meaningless and unfulfilling; difficulty caring for others; envious of others who have not faced a loss; experiencing symptoms of the deceased; hearing or seeing the deceased; excessive proximity seeking; intense emotional/physiological reactivity to memories/reminders; and disturbing emotional/physiological reactivity to reminders.

Prigerson and colleagues' PGD criteria focus much less on characterizing the circumstances of the bereavement, instead focusing on the symptoms accompanying bereavement and separation distress (i.e., yearning/longing for the deceased). Additional symptoms include avoidance of reminders; difficulty trusting others; considering life as empty, meaningless and unfulfilling; confusion regarding self-identity/feeling that part of yourself died; and difficulty moving on. Interestingly, proposed criteria for ICD-11 PGD (Maercker et al., 2013) keep the concept of separation distress, symptoms of confusion regarding self-identity/part of yourself died, and difficulty moving on, dropping avoidance of reminders, difficulty trusting others, and considering life as empty, meaningless and unfulfilling, while adding difficulty positively reminiscing as well as self-blame and other maladaptive cognitive appraisals.

Finally, PCBD (APA, 2013) as proposed, appears to be an integration of CG and PGD. In addition to the shared concept of separation distress and other shared reactive symptoms previously mentioned, PCBD includes preoccupation with the circumstances of the death (CG); difficulty positively reminiscing (PGD, ICD-11); self-blame and other maladaptive cognitive appraisal (CG/PGD, ICD-11); avoidance of reminders (CG/PGD); desire to die (CG); difficulty trusting others (CG/PGD); loneliness (CG); considering life as empty, meaningless and

unfulfilling (CG); confusion regarding self-identity/part of yourself died (PGD/PGD, ICD-11); and difficulty moving on (PGD/PGD, ICD-11).

In addition to evaluating if a patient meets criteria for a diagnosis of PGD or PCBD, clinicians must also consider the possibility that the person's symptoms are better explained by an alternative diagnosis. While research has shown bereavement related disorders to be distinct (Maciejewski et al., 2016), they do share similar symptom presentations to other disorders and are not the only disorders that can present following a loss. Differential diagnoses such as chronic depression, major depressive episode, posttraumatic stress disorder, and normative grief responses are among the many other diagnoses important to consider.

When differentiating between general depression and grief-related distress, Jordan and Litz (2014) encourage clinicians to consider the extent the individual's despair is directly related to their separation from their loved one rather than a general depressive mood. Previous research, which has looked at the trajectory of depressive symptoms predating loss, at bereavement, and across a period of 18 months post-bereavement has shown that there are variable trajectories of post-bereavement depression (Bonanno, 2004), with some depressive states occurring within the context of pre-bereavement depressive symptoms and being independent of bereavement (i.e., chronic low depression, chronic major depression). Jordan and Litz (2014) also point out several distinguishing characteristics of prolonged grief disorder including: absence of global guilt/worthlessness in PGD, loss of interest accompanied by beliefs that being reunited with the deceased would eliminate distress, and difficulty trusting others/loss of meaning without the deceased. Further information regarding diagnosing PGD within the context of a major depressive episode (MDE) will be included later in the document.

Clinicians may also need to consider that the manner in which loss was experienced has made the bereaved person vulnerable to development of PTSD. Despite avoidance of external and internal reminders of the deceased being a shared characteristic of PGD and PTSD, the emotional profiles are distinct between these two disorders (Jordan & Litz, 2014). While PTSD's emotional profile typically includes feelings of fear, anxiety, shame, and guilt, PGD is more likely to include feelings of yearning, loss, and emptiness. Feelings of numbness may be a common shared symptom between the two diagnoses, and it remains important to remember that comorbidity is not uncommon with PGD (Simon et al., 2007).

Another likely explanation for a patient's presenting distress is normal grief. One of the central features of non-normative bereavement reactions is the persistent change in functioning and continued desire and yearning for the lost loved one. As previously mentioned, research that has looked at the trajectory of bereavement-related distress found that about 45% of their sample experienced low rates of depressive symptoms and bereavement-related symptoms largely resolved by 18 months (Bonanno, 2004). Given that the majority of participants did not develop adverse grief reactions, it is important to consider the nature of the distress and timeline in order to evaluate the likelihood of non-normative bereavement distress.

Clinical Judgment and Decision-Making

Given the multiple conceptualizations of non-normative grief in the literature and the various differential diagnoses to consider, it is important to examine the role of clinical judgment and the underlying mechanisms that dictate that process. Much of what clinicians do involves interpreting and making predictions based on their clients' behavior (e.g., probable diagnosis, risk for suicide, treatment response), requiring them to use their clinical judgment, an informal and intuitive decision-making process (Ægisdóttir et al., 2006). The greater literature on

decision-making suggests that people engage in two types of cognitive processes when making decisions. This is known as the dual processing system and includes a quick, automatic, heuristic-based approach (System 1) and a purposeful, deliberate, slower process (System 2) (for a review see Evans, 2008). Since clinical judgment relies on the clinician's informal, intuitive decision-making process, it is heavily influenced by cognitive heuristics or shortcuts, such as availability (Tversky & Kahneman, 1973) and the representativeness heuristic (Tversky & Kahneman, 1974), and vulnerable to the development of error. For this reason, it is particularly important to develop and implement methods to optimize the accuracy of clinical judgment, through debiasing the cognitive decision-making process to the greatest extent possible.

For example, a clinician may be misled by their conceptualization of a diagnostic “prototype” (i.e., representativeness) or the cases they have most often seen in the past or can easily recall (i.e., availability). If a clinician is working on a psychiatric inpatient unit, their repeated exposure to patients with psychosis is likely to have resulted in a diagnostic prototype for schizophrenia. If a patient with an atypical presentation or prodromal symptoms does not match this prototype, the clinician may be at risk for missing the correct diagnosis as a result of the representativeness heuristic. Conversely, if the same clinician has commonly and even recently seen a presentation very similar to the patient's, they might prematurely give a diagnosis of schizophrenia due to the availability heuristic, without ruling out other relevant diagnostic differentials (e.g., intoxication, delirium). One can also apply this type of thinking error to diagnosing and treating the bereaved. If a recently bereaved patient presents for care and does not meet that clinician's understanding of—or “prototypical” representation of—PGD, they are much less likely to select that diagnosis. Similarly, clinicians are more likely to use previous learning, such as their “representation” of disorders, in order to make a determination about

likely diagnosis. In order to successfully debias this decision-making process, clinicians must first be aware of a possible bias, be motivated to correct it, understand the way bias is influencing their decision, and be able to successfully implement a debiasing strategy in order to avoid biased decision-making (Croskerry, 2005). While seemingly straightforward, failure at any of these levels can result in distorted clinical judgment and biased decision-making.

Cognitive Debiasing

Despite a robust body of literature demonstrating the effect of various cognitive errors on the clinical decision-making of mental health professionals, far less research has focused on the remediation of these maladaptive processes (Lilienfeld, Ammirati, & Landfield, 2009). While medical professionals have incorporated what has been learned about bias in decision-making to improve decision-making through a number of internal and external strategies (Croskerry et al., 2013; Graber, et al., 2012; Lambe, O'Reilly, Kelly, & Curristan, 2016; Ludolph & Schulz, 2018), this adoption has not been seen among mental health professionals.

In addition to researchers less frequently investigating debiasing strategies with mental health professionals, the field has remained rather disjointed, with early research testing the effects of individual debiasing strategies on individual biases rather than targeting the underlying mechanisms of biased decision-making (Aczel, Bago, Szollosi, Foldes, & Lukacs, 2015). While organizational systems have been proposed to better understand these errors and inform potential debiasing strategies (Arkes, 1991; Larrick, 2004), these groupings remain inconsistently used. When one does characterize the limited research that has been done with mental health professionals, it has largely centered on aspects of cognitive debiasing. Cognitive debiasing refers to the use of cognitive strategies to counter the effects of misused cognitive heuristics or biases. Some cognitive strategies that have been assessed with mental health professionals

include awareness building (Friedlander & Philips, 1984; Parmley, 2006), listing reasons in support of all possible diagnoses (Arkes, Faust, Guilmette, & Hart, 1988), considering the opposite and taking notes (Mumma & Wilson, 1995), training in diagnostic coding (Rezvy, Parniakov, Fedulova, & Oldstad, 2008), feedback (Haderlie, 2011; Wood & Tracey, 2009) and training in statistical concepts (Jefferies-Sewell, 2015).

One randomized controlled trial successfully reduced bias and cognitive errors in the diagnosis and treatment decision-making of mental health professionals by providing education on common cognitive pitfalls and debiasing strategies for PBD (Jenkins & Youngstrom, 2016). Researchers first identified several common errors in the diagnosis and treatment of PBD: base rate neglect, search satisfying, diagnostic momentum, and race and ethnicity bias. They then constructed vignettes that included these pitfalls and used a multidimensional approach for their debiasing intervention. Participants were mental health professionals ($N = 137$), recruited with study fliers, listserv announcements, and by word-of-mouth. All study materials and measures were administered on Qualtrics, a web-based survey platform (Qualtrics, 2014). After being screened for inclusion and eligibility, Qualtrics automatically randomized participants into the control ($n = 81$) or treatment group ($n = 56$). Both groups were then directed to an automated, narrated PowerPoint presentation, the control group viewing a brief presentation on PBD, while the treatment condition viewed the brief presentation on PBD and the cognitive debiasing intervention. The debiasing intervention was comprised of two sections: the first provided education on common cognitive pitfalls in the assessment of PBD (i.e., base rate neglect, search satisfying, diagnostic momentum, and race and ethnicity bias) and the second tools to avoid them, such as utilizing symptom checklists, considering alternative explanations, engaging in metacognition or reflecting on one's thinking process, decreasing reliance on memory, and using

simulation for practice. Following the presentations, all participants reviewed four vignettes and were asked to (a) select a probable diagnosis and (b) recommend the next clinical action (e.g., additional assessment, psychotherapy, medication, no treatment, and other). Participants were also given the opportunity to indicate any additional diagnoses they were considering, which allowed researchers to assess differential diagnosis processes. When compared to the group of clinicians who only received a brief presentation on PBD, clinicians in the debiasing intervention outperformed controls on overall diagnostic accuracy ($d = 1.67$), sensitivity to possible hypomania or mania, detecting co-morbid conditions, and reducing diagnostic momentum.

One of the strengths of this debiasing intervention was its multi-level targeted approach. Croskerry et al. (2013) wrote that in order for successful debiasing to take place, certain steps are necessary or the risk for distorted clinical reasoning increases. When a bias is triggered, the decision-maker must be aware, motivated to correct the bias, aware of the direction and magnitude of the bias, and have the ability to use an appropriate debiasing strategy. Jenkins and Youngstrom's (2016) debiasing intervention used multiple steps within this model by building awareness of common cognitive pitfalls, providing information on how these pitfalls commonly affect diagnosis and treatment decisions in PBD, and finally by providing appropriate debiasing strategies to optimize decision-making. It is for this reason that we predict this method is superior to awareness building or strategy training in isolation. Thus, we used this methodology to inform our own debiasing intervention for bereavement-related disorder diagnosis and treatment planning.

Cognitive Errors in Diagnosis, Assessment, and Treatment of Bereavement Disorders

Given the lack of agreement in the field on a formal definition of and criteria for non-normative bereavement related distress, it is not surprising that clinicians have a number of

challenges in diagnosing, assessing, and treating bereaved individuals. The inclusion of PCBD in the DSM-5 under “conditions for further study” communicated that, while evidence exists that supports its inclusion, additional research is needed in order to ascertain the distinguishing criteria of the disorder (Bryant, 2013). Notably, the DSM-5 workgroup did not adopt a singular proposed definition [see Prigerson et al. (2009) or Shear et al. (2011)] in its entirety, instead integrating aspects of both and requesting further research to identify the essential features of the diagnosis (e.g., yearning).

One of the biggest concerns of the workgroup and larger field of mental health was that the inclusion of a bereavement related disorder in the diagnostic manual had the potential to lead to the unnecessary pathologizing of normative bereavement reactions and the bereaved. Since bereavement is a common and generally inevitable part of the human experience, the field has been hesitant to prematurely include a bereavement related disorder in part due to a reasonable fear of repeating a pattern of historical offenses of pathologizing normative reactions, responses, and experiences (e.g., “drapetomania,” “homosexuality”). In fact, the DSM-III and DSM-IV criteria for major depressive disorder (MDD) went so far as to include a bereavement exclusion (BE) to avoid pathologizing this common life experience, as many depressive symptoms (e.g., depressed mood, loss of appetite, crying, loss of interest) are associated with normative bereavement and remit without need for intervention (Clayton, Desmarais, & Winokur, 1968). This precluded bereaved individuals from being diagnosed with MDD if they met the following criteria: (1) no psychotic ideation; (2) duration of no more than 2 months, by which point it must remit; (3) does not cause severe impairment in role functioning; (4) no suicidal ideation; (5) no psychomotor retardation (i.e., no general and observable slowing down of thought and movement); and (6) the bereaved individual must not suffer from a morbid preoccupation with

his or her worthlessness as a human being. If so, this would designate their experience and symptom presentation as a normative grief response, making it an “uncomplicated” bereavement as opposed to a “complicated” case where one of the above criteria were met and the bereaved individual was able to be given a diagnosis of MDD.

However, these exclusionary criteria were challenged with the release of DSM-5, with researchers citing mixed information about the relationship between MDD and stressful and/or difficult life events such as bereavement. (Wakefield & First, 2012). Wakefield, Schitz, First, and Horwitz (2007) assessed the appropriateness of extending the uncomplicated/complicated distinction to include non-bereavement stressors. Their findings provided support for extending the BE to further distinguish between complicated and uncomplicated responses to common stressors and reduce the diagnosis of MDD in cases of normative reactions. Additional research confirmed the lack of differences between bereavement and other stressor-induced depression (Kendler, Myers, Zisook, 2008) as well as the lack of variance in MDD presentation as a function of general psychosocial factors (Kendler, Myers, & Halberstadt, 2010).

Ultimately, during the revision process for the DSM-5 it was asserted that the BE would either need to be extended to include other life stressors or removed. Lack of support for extending the BE to include other life stressors led to it being excluded from DSM-5. However, given the mixed literature, the concept continues to be a confound for clinicians trying to differentiate between normal grief response, non-normative grief response, and depression. Indeed, pushback and concerns about the BE’s removal prompted an expanded footnote to be included with the diagnostic criteria for MDD (see below).

In distinguishing grief from a major depressive episode (MDE), it is useful to consider that in grief the predominant affect is feelings of emptiness and loss, while in MDE it is

persistent depressed mood and the inability to anticipate happiness or pleasure. The dysphoria in grief is likely to decrease in intensity over days to weeks and occurs in waves, the so-called pangs of grief. These waves tend to be associated with thoughts or reminders of the deceased. The depressed mood of MDE is more persistent and not tied to specific thoughts or preoccupations. The pain of grief may be accompanied by positive emotions and humor that are uncharacteristic of the pervasive unhappiness and misery characteristic of MDE. The thought content associated with grief generally features a preoccupation with thoughts and memories of the deceased, rather than the self-critical or pessimistic ruminations seen in MDE. In grief, self-esteem is generally preserved, whereas in MDE feelings of worthlessness and self-loathing are common. If self-derogatory ideation is present in grief, it typically involves perceived failings vis-à-vis the deceased (e.g., not visiting frequently enough, not telling the deceased how much he or she was loved). If a bereaved individual thinks about death and dying, such thoughts are generally focused on the deceased and possibly about "joining" the deceased, whereas in MDE such thoughts are focused on ending one's own life because of feeling worthless, undeserving of life, or unable to cope with the pain of depression (APA, 2013, p. 161).

While helpful in highlighting the cardinal features of a MDE and describing differences with grief, the note gives little clarification regarding the validity of the bereavement exclusion or guidance for clinicians' differentiating between uncomplicated reactions to adverse life events and complicated reactions (i.e., non-normative grief reactions). These qualifiers indeed represent different views in the field. While clinical judgment is an important part of diagnosis and clinical practice, there are many examples of how clinician level variables impact clinical judgment, leading to variability in diagnoses (Berman, Stark, Cooperman, Wilhelm, & Cohen, 2015;

Ganzach, 2000; Neighbors, Trierweiler, Ford, & Muroff, 2003; Olbert, Nagendra, & Buck, 2018). When giving agency to the provider to determine if their patient's psychopathology is better understood as uncomplicated/normative bereavement, complicated/non-normative bereavement, or MDD, it remains difficult to minimize the possibility for an attribution error. Clinician level bias or heuristics may lead to variability in diagnostic thresholds, or inappropriate attribution of symptoms of MDD to a recent loss, or the opposite, symptoms of a true major depressive episode to non-normative or normative grief.

Moreover, clinicians' familiarity with other types of psychopathology, may overshadow symptoms of non-normative bereavement. It is not surprising that differential diagnosis may be challenging or entirely overlooked in bereaved individuals, given the exclusion of a non-normative bereavement disorder in the main text of the DSM and as well as existing work that has conceptualized non-normative bereavement as including a pattern of avoidance similar to that seen in PTSD and MDD (Boelen, & Eisma, 2015; Boelen, van de Schoot, van den Hout, de Keijser, & van den Bout, 2010). Further, clinicians repeated exposure to patients diagnosed with MDD, adjustment disorders, or PTSD may result in an availability bias where clinicians think of their most recent or easily accessible case examples for comparison rather than evaluating for bereavement related distress. This may be particularly difficult to override, when considering the variable number of bereaved individuals that may be seen by a given clinician.

Further, due to the commonality of bereavement, established beliefs, misconceptions, and heuristics about the normative bereavement process are regularly applied to conceptualizing and treating non-normative grief reactions. We can look to the literature for a number of examples of misconceptions of "healthy" or "normal" grieving experiences or processes. For example, while individuals often describe engaging in "grief work" or "working through" a loss, there is no

evidence that this process is necessary for the reduction of distress in bereaved individuals (Wortman & Silver, 1989). However, it remains a commonly used and referenced strategy for reducing emotional distress among the bereaved (Stroebe & Schut, 1999). It is possible that inferences about the necessity of engaging in “grief work” or working through the “stages of grief” (Kübler-Ross, 1969), may result in treatment or diagnostic decisions led by the representative heuristic, or clinicians’ prototypical view of non-normative grief. Existing heuristics of normative bereavement responses may lead clinicians to overlook cultural or identity-related factors that may alter the individual’s presentation of normative or non-normative bereavement reactions.

Disenfranchised grief is an example of how individual level variables, circumstances of the loss, and relationship with the deceased can impact the recognition of certain bereaved populations. When individuals do not meet the socially understood framework of a person who could grieve a loss, they may be less likely to be recognized as needing assistance with their bereavement process (Doka, 1989). Bereaved sexual- and gender-minority spouses or partners (Bristowe, Marshall, & Harding, 2016), parents bereaved by miscarriage or pregnancy loss (Lang et al., 2011), persons bereaved by suicide (Logan, Thornton, & Breen, 2018), health care providers (Carton & Hupcey, 2014), bereaved ex-spouses (Tullis, 2017), and bereaved pet owners (Cordaro, 2012) may be susceptible to the effects of disenfranchised grief. Existing beliefs and heuristics about who can grieve and what circumstances constitute a loss may lead to inaccurate assumptions regarding the validity of bereaved related distress.

Debiasing Strategies for Prolonged Grief Disorder

While debiasing has been under-researched (Lilienfeld et al., 2009) and most of the available research has centered on counteracting specific biases or misused heuristics

independent of a particular diagnosis (Aczel et al., 2015), multi-modal debiasing interventions, such as Jenkins and Youngstrom's (2016) cognitive debiasing intervention for PBD, have been shown to be successful in reducing multiple errors and enhancing diagnostic accuracy. The essential elements of their model included first building awareness of common cognitive pitfalls, providing information on how these pitfalls commonly affect diagnosis and treatment decisions in that given diagnosis, and offering appropriate debiasing strategies to optimize decision-making.

As previously stated, there are a number of cognitive errors that can interfere with diagnosis and treatment of non-normative grief reactions. Given the international reach of the ICD (First et al., 2018), as well as the small amount of available research assessing PCBD (64 articles available on PsycINFO as of March 1, 2021), this paper focused on the PGD criteria proposed for ICD-11. When considering some of the difficulties associated with diagnosing and treating the bereaved, the overlap between normative grief, non-normative grief, and MDD has been a highly debated topic. As previously stated, after removing the BE from DSM-5, a footnote was added to allow room for clinicians to use their clinical judgment regarding the exclusion of the bereaved from a diagnosis of MDD. The footnote distinguishes between some key differences in thought content, emotional states, and course between a MDE and grief, but says little about the distinguishing features of non-normative grief and MDE. Given the lack of consensus and difficulty disentangling bereavement and depression, cognitive strategies would be an appropriate intervention to assist clinicians trying to optimize their decision-making when considering a diagnosis of MDD, PGD, or normative grief. Clinicians would benefit from knowledge of the existing diagnostic features of each of the disorders, as previous research has shown training in diagnostic coding to be an effective intervention for tempering diagnostic

errors (Rezvy et al., 2008). In addition, more regularly used diagnoses may be more “available” or easily called to mind when evaluating a bereaved patient. One way to avoid conflating the most probable option and the option that is most easily called to mind is to slow down the automatic process of availability by evaluating the information provided objectively and systematically. This can be facilitated by engaging in a simple process, such as listing reasons for and against a diagnosis. Alternatively, a clinician could “considering the opposite” and evaluate the available information under the premise that their initial diagnosis is wrong or assessing the information’s fit with a competing diagnosis (Arkes et al., 1988; Koriat, et al., 1980; Lord et al., 1984). This may be especially helpful in the case of differentiating between MDD, PGD, and normative bereavement given the context of the bereavement exclusion.

Furthermore, in the absence of empirical evidence, cultural beliefs and folklore related to the normative bereavement process may lead to the development of heuristics regarding bereavement and grief which may guide decision-making processes. In particular, decisions regarding the appropriateness of bereavement responses may be informed by a clinician’s prior experiences that have resulted in a representativeness bias (or clinicians’ prototypical view of non-normative grief). As previously referenced, beliefs regarding who can be considered bereaved and experience grief may disproportionately impact disenfranchised grievers or those with reactions in contrast to clinicians’ representativeness heuristic. Similarly, over pathologizing may also impact diagnostic practices among the bereaved (Ganzach, 2000; Ganzach, 1997; Meyer & Meyer, 2009). When attempting to reduce the effects of a representativeness heuristic, cognitive strategies such as listing reasons for and against a diagnosis have been shown to be helpful in evaluating the symptoms present in a more objective manner (Arkes et al., 1988; Koriat, et al., 1980; Lord et al., 1984). Mnemonic devices may also

assist providers by reducing reliance on memory to recall important diagnostic criteria (Jenkins & Youngstrom, 2016).

The Present Study

Over time various conceptualizations of normative and non-normative grief (i.e., prolonged grief, pathological grief, complicated grief, persistent complex bereavement disorder) have emerged in the field. As a result, clinicians have faced considerable challenges when it comes to providing accurate diagnoses when working with the bereaved. In addition to the lack of consensus regarding the diagnostic criteria, the utility of PGD developed for ICD-11 is limited by clinicians' lack of familiarity with the disorder and the potential to instead rely on existing heuristics and beliefs.

The current study built on previous research that successfully used a multi-modal debiasing approach to reduce diagnostic and treatment decision errors. The following study emulated the approach taken by Jenkins and Youngstrom (2016) in their cognitive debiasing intervention for PBD, and modified the intervention to randomize clinicians into a general presentation on the stress and trauma related disorders section of the ICD-11 that included the diagnostic criteria of PGD or the same presentation with an added cognitive debiasing intervention. Following a presentation of either the control or intervention condition, all clinicians were asked to read three patient vignettes in which potential decision-making errors and biases were embedded in the text. Following each vignette, clinicians were asked to provide a diagnosis in order to assess the effects on decision-making accuracy. They were be asked to rate the severity of and their confidence in their diagnosis in order to confirm activation of intended biases.

The present study aimed to (a) assess the efficacy of a cognitive debiasing intervention that educates clinicians about common cognitive errors in the diagnosis of PGD and provides strategies to reduce these errors for improving the diagnostic accuracy of PGD. In addition to assessing the impact of this intervention on diagnostic decision accuracy, the study (b) assessed the effectiveness of the intervention on reducing specific diagnostic errors such as availability, over-pathologizing, and the representativeness heuristic.

In light of the reviewed research above, the following was hypothesized:

- (1) It was hypothesized that the cognitive debiasing intervention would be successful in increasing the overall diagnostic accuracy of PGD when compared to a control condition.
- (2) It was also hypothesized that the intervention would reduce the occurrence of specific cognitive errors including availability, over-pathologizing and representativeness heuristics.
- (3) It was hypothesized that evidence of system 1 decision-making and bias activation would be most evident among individuals in the control condition when compared to those in the intervention condition.
- (4) Exploratory analyses would also assess any effects of practice setting and years of experience on diagnostic accuracy.

Methods

Participants

Participants were clinicians identified through the American Psychological Association membership directory. Recruitment information was sent via publicly available email addresses. Eligible clinicians were currently seeing individuals for psychotherapy or psychodiagnostic

assessments and employed in a position that requires the diagnosis of mental health disorders. Clinicians were excluded if they did not currently see patients for clinical activities, if children and/or adolescents comprise the majority of their practice, or if they did not have a position that requires diagnosis of mental health disorders. Participants were entered into a raffle to win one \$200 first prize or one of three \$100 second prizes to incentivize their participation.

Procedure

The study data were collected and managed using the Qualtrics electronic data capture tools hosted at Virginia Commonwealth University. Presentation materials were embedded in the Qualtrics survey as pre-recorded narrated PowerPoint videos.

Clinicians accessed study materials through a Web address enclosed in the recruitment email message. Upon accessing the Qualtrics website, clinicians were directed to the consent page and indicated whether or not they were interested in participating and gave their consent. Uninterested clinicians were thanked for their time and exited out of the survey, while clinicians who agreed to participate were directed to the start of the survey.

Following the consent page, participants were directed to a short demographic questionnaire. In order to reduce the incidence of missing data, all questions within the Qualtrics survey included a prompt inquiring if the participant purposely meant to keep an answer blank and if they would like to return to answer it. This did not force the individual to provide a response to any question, but ensured that accidentally missed items could be answered. Following completion of the demographic questionnaire, Qualtrics automatically randomized participants to a screen with one of two video embedded presentations. Embedded video presentations were either a short presentation on stress-related disorders in ICD-11, including PGD (i.e., control group) or both the short presentation on stress related disorders in ICD-11 and

the cognitive debiasing intervention (i.e., intervention group). In order to assess completion of viewing the video presentation, a timer was included to track how long participants were on each page of the study survey.

Following the video presentations, participants completed a short survey about the presentation to check participant's attention and confirm the clarity of the presentations. Participants then viewed the three case vignettes, randomized to minimize ordering effects. Each vignette was followed by questions related to the clinician's diagnosis, their confidence in their diagnosis, and how they would rate the patient's severity. In the intervention group, one vignette had a unique post-vignette survey which is detailed below. After completing all vignettes and associated questions, clinicians in the control group completed the study and were redirected to the separate raffle survey. Clinicians in the intervention group were asked questions about the acceptability of the intervention and their knowledge of grief before being redirected to the raffle survey.

Materials

Demographics Survey. Participants were asked to complete a short demographics survey before completing the intervention (see Appendix for copies of all measures). The questionnaire asked about gender, age, level of education, degree type, clinical specialization, years of licensure and post-graduate experience providing psychotherapy or psychodiagnostic assessments, practice setting (e.g., private practice, psychiatric hospital, outpatient program, hospital based system), distribution of patient's ages, theoretical orientation(s), role distribution (e.g., research, clinical work), and finally familiarity with the diagnostic criteria of prolonged grief disorder and other disorders (measured on a sliding scale where 1 = *not at all familiar* and 6 = *very familiar*).

Debiasing Intervention. The debiasing intervention and control condition both included a short pre-recorded narrated PowerPoint presentation with a brief overview on disorders to be included in ICD-11 stress and related disorders section (e.g., posttraumatic stress disorder, adjustment disorder, prolonged grief disorder). Following this first section of the presentation, the control group was directed to the next step of the study protocol, while the debiasing intervention group viewed the second portion of the narrated presentation. In this portion of the presentation, clinicians were advised regarding the common diagnostic pitfalls of PGD, including mistaking PGD for depression or other psychopathology, comparing cases to past or personal experiences of bereavement, and overlooking disenfranchised grievers. These pitfalls were then related to common heuristics and biases that are thought to lead to distorted diagnostic decision-making. Clinicians were also provided with techniques and strategies to reduce diagnostic errors by intervening in the automatic decision-making processes. For links to the above-mentioned interventions, see Appendix J.

Attention Check. Following the presentations, both groups were directed to short surveys about the presentation content before reviewing vignettes (see Appendix B and Appendix C). These surveys served as a tool for verifying participants attended to the presentation content. Participants who scored more than one standard deviation below the mean were excluded from further analyses. Following the completion of the attention check survey, all participants were directed to a random series of three patient vignettes.

Vignettes. Vignettes were developed using diagnostic criteria from the proposed ICD-11 criteria for PGD (Killikelly & Maercker, 2018). Drafting of vignettes was done by referencing previously available vignettes and by adhering to recommendations for vignette development outlined in Evans et al. (2015). Drafts of vignettes were exchanged between two study team

members to improve consensus regarding diagnostic clarity. Vignettes were developed with the aim of examining specific decision-making errors. Following development, vignettes were tested by 6 experts in the fields of grief and diagnosis of mental illnesses. Following expert review, the vignettes were updated based on the panel's recommendations.

Availability effects. The first vignette described Mrs. Taylor who is a recently bereaved widow with PGD (see Appendix D). Given that 16.2% adults report a lifetime incidence of major depressive disorder, but only 10% of *bereaved* adults meet criteria for PGD, it is likely that most mental health professionals will be more familiar with and more easily call to mind symptoms of major depressive disorder. Mrs. Taylor's high level of distress and behavior may be interpreted as major depressive disorder, depending on individual's level of familiarity with and clinical experience with pathological grief.

Representativeness. The second vignette described Kimberly who is a college student with PGD (see Appendix E). Kimberly's case is intended to demonstrate the impact of the representativeness bias, or the misleading effects of a clinician's stereotype of a prototypical presentation of a diagnosis. This bias has shown to reduce decision-maker's reliance on known probabilities (Tversky & Kahneman, 1973). In the case of Kimberly, her college roommate with whom she does not have a substantial social relationship passes away after contracting meningitis when Kimberly is out of town. Kimberly represents a non-typical bereavement, in that her relationship to the bereaved is not one that is recognized by her social circles or greater society (Doka, 1989). As this presentation violates common presumptions about who can and cannot grieve (i.e., close, important, familiar losses), it is expected that when the reader compares this case to their representative case, Kimberly's presentation will appear less valid as a PGD case resulting in reduced diagnostic accuracy. One way to combat issues of

representativeness is by giving information about alternative presentations and making clinicians aware of any information related to prevalence and/or base rates. For the purposes of this intervention, available information about disenfranchised grief was included in the debiasing intervention.

Over-pathologizing. The third vignette described Mr. Greg Learly who is an older adult whose twin sister passed away after contracting pneumonia (see Appendix F). This vignette attempts to showcase a normative grief response, with the hope of capturing the documented bias among psychologists and other mental health clinicians to over emphasize evidence of pathology (Ganzach, 2000; Ganzach, 1997; Meyer & Meyer, 2009). Given the commonality of grief and bereavement, early prominent and influential theories (Kübler-Ross, 1969; Freud, 1917), and the limited empirical inquiry into the trajectory of grief (Bonnano et al., 2002), clinicians have been left with limited direction regarding how to identify non-normative grief. In light of the lack of information and guidelines for diagnosis, pathological elements may be weighed more heavily. In order to counteract these potential effects, the debiasing intervention included psychoeducation on the non-linear, non-staged trajectory of grief. The intervention also referenced a short mnemonic device to recall the symptoms required for a PGD diagnosis (i.e., “SLOPE IN” greater than **S**ix months duration, **L**onging for the deceased **O**r **P**reoccupation, intense **E**motions, causing **I**mpairment, and violating cultural **N**orms), which has shown to be successful in reducing reliance on memory to recall diagnostic criteria (Jenkins & Youngstrom, 2016).

Post-vignette measures. Following all vignettes (with the exception of the availability bias vignette for the intervention group) participants in both groups were asked to (i) make a decision about the most likely diagnosis given the information in the vignette, (ii) provide a

clinical judgment regarding the severity of this case on a sliding scale (0 = *not at all severe*, 50 = *moderately severe*, 100 = *extremely severe*), and (iii) provide a confidence rating in their diagnosis on a sliding scale (0 = *not at all confident*, 50 = *moderately confident*, 100 = *extremely confident, absolutely certain*; see Appendix G).

Post-availability vignette: Intervention group. At the end of the availability vignette, participants were instructed to advance to the next page once they had finished reading the vignette. Individuals in the intervention group were asked to first list reasons in support of their preliminary diagnosis as well as a competing diagnosis in two text boxes. Once they had completed these two questions, intervention participants were then asked to select the most likely diagnosis, rate the severity of the case, and provide a confidence rating regarding their diagnosis for the case (see Appendix H).

Intervention group acceptability survey. Following the vignettes and associated surveys, individuals in the intervention group were asked to answer a brief survey about their experience and satisfaction with the intervention presentation and resources. They were also asked to report on the percentage of their clinical work that includes treating bereaved individuals, personal experiences with grief, and any other resources they used during the study (see Appendix I).

Statistical Analysis Plan

Chi-Square Analyses. In order to assess the effect of the intervention on overall diagnostic accuracy (hypothesis 1), we conducted a 2 x 2 chi-square analysis in order to compare the percent of correct diagnoses in the control condition, percent incorrect in the control condition, percent correct diagnoses in the intervention condition, and percent incorrect in the intervention condition. Additionally, to evaluate the effect of the intervention on each embedded

bias being activated within the individual vignettes (hypothesis 2), we conducted three separate 2 x 2 chi square analyses to compare the proportion of accurate and inaccurate diagnoses across the control and intervention conditions in each vignette.

Point-Biserial Correlations. Given that activating the embedded biases within the vignettes is necessary to test the effectiveness of the debiasing intervention, separate analyses were completed in order to assess bias activation (hypothesis 3). It was hypothesized that with reduced time spent deliberating, increased perception of case severity, and increased confidence in diagnostic accuracy, diagnostic accuracy would be more greatly impacted by system one, or automated, decision-making. In order to evaluate this assumption, point biserial correlations were conducted to assess the association between time spent deliberating, higher severity and confidence ratings (0-100) and diagnostic accuracy (correct/incorrect). This was repeated for each vignette in order to assess bias activation across all patient vignettes.

Intervention Reception. Descriptive analyses were conducted in order to assess how the intervention was received, including clinician's opinions regarding the utility of the intervention presentation, as well as their reported use of the resources to complete their diagnostic decision-making.

Exploratory Analyses. Finally, exploratory analyses assessed for any differences between any demographic or background factors (i.e., age, years of experience, practice setting, theoretical orientation, age distribution of clients in practice, and role distribution) on diagnostic accuracy (hypothesis 4). In the intervention group, Pearson correlations tested the association between percentage of a clinician's practice dedicated to treating the bereaved and percent correct diagnoses. One-way ANOVAs compared diagnostic accuracy across degree type and clinical specialization.

Results

Descriptive Statistics

Demographic data and outcome variables. We invited 10,101 clinicians to participate in the study by email; 122 (1.21%) clinicians responded to our initial request for participation. We obtained permission from the Institutional Review Board to contact respondents who had not completed the survey a second time and an additional 56 (0.55%) clinicians responded. Of these clinicians, 178 (1.76%) responded to some study items, and 78 (43.82%) of initiators completed the study in its entirety. Fourteen participants (21.79%) were excluded after reviewing the amount of time spent on presentation pages, scores on attention checks, and reviewing data for suspicious response patterns. We also excluded 6 clinicians (7.69%) who reported the majority of their practice comprised work with children. The final sample was comprised of the 58 remaining participants (74.36%). For information regarding the demographic and professional features of the final sample, as well as between group comparisons, refer to Table 2.

Hypothesis Testing

Diagnostic Accuracy. In order to assess the impact of the intervention on overall diagnostic accuracy across all three vignettes we conducted chi-square analyses that revealed an overall non-significant relationship, $\chi^2 (3, N = 56) = 4.46, p = 0.22$, contrary to our hypothesis. We also conducted additional chi-square analyses to assess the impact of the intervention on the biases embedded within each vignette. Contrary to our hypotheses, analyses revealed no significant difference in diagnostic accuracy in the first vignette (Mrs. Tracey) intended to activate the availability bias ($\chi^2 [1, N = 56] = 2.99, p = 0.08$), the second vignette (Kimberly) intended to activate the representativeness bias ($\chi^2 [1, N = 56] = 1.73, p = 0.19$), or the final

vignette (Greg Learly) intended to activate the over-pathologizing bias ($\chi^2 [1, N = 56] = 0.22, p = 0.64$). For the full pattern of accurate and inaccurate diagnoses across vignettes, see Table 3.

Additionally, we reviewed the responses of the clinicians in the intervention condition following the first vignette (Mrs. Tracey). Clinicians were required to list two preliminary diagnoses and list reasons for and against each. The vast majority of clinicians listed one diagnosis as PGD ($n = 35; 92.11\%$). The following diagnoses were listed as differential diagnoses: MDD ($n = 20; 52.63\%$), PTSD ($n = 6; 15.79\%$), adjustment disorder ($n = 4; 10.53\%$), persistent depressive disorder ($n = 3; 7.89\%$), generalized anxiety disorder ($n = 2; 5.26\%$), acute stress disorder ($n = 2; 5.26\%$), complex stress disorder ($n = 1; 2.63\%$), dementia ($n = 1; 2.63\%$), and no diagnosis ($n = 1; 2.63\%$).

Measurement of Bias Activation. We then conducted point-biserial correlations to assess bias activation in each vignette. These were conducted separately in both the intervention and control groups and included assessing the relationship between diagnostic accuracy and the following variables: time, confidence, and severity. It was expected that bias activation would be more evident among clinicians in the control condition, with clinicians completing the debiasing intervention less likely to show evidence of bias activation.

Time and Accuracy. Time spent considering the available data (e.g., reading the vignette, responding to diagnostic questions) was used a proxy for engagement in system 1 (automatic, heuristic based) or system 2 (deliberate, effortful) thinking. As time spent reviewing the data increased, the rationale was that more deliberate decision-making was occurring (system 2) and would be associated with increased diagnostic accuracy. Conversely less time spent reviewing the materials would indicate automatic, heuristic based decision-making (system 1) more likely to result in decreased accuracy. It was hypothesized that a positive relationship between accuracy

and time would be stronger among those in the intervention condition. However, there was no relationship between time or accuracy across any of the vignettes in either the control or intervention groups (see Table 4).

Confidence and Accuracy. Existing literatures would suggest that across all vignettes, as clinician's confidence in their diagnosis increases, diagnostic accuracy would decrease (Oskamp, 1965), with a significant negative relationship expected among the control condition, with a weaker or nonsignificant relationship in the intervention condition. However, there was no relationship between confidence and accuracy across any of the vignettes in either the control or intervention groups (see Table 4).

Severity and Accuracy. Based on the biases embedded within each vignette, severity was expected to be differentially related to diagnostic accuracy. For the first vignette (Mrs. Tracey) which tested the availability heuristic, we hypothesized that as the clinician's perspective on the severity of the pathology increased, they would be more likely to rely on familiar or more "available" diagnoses (e.g., MDD, PTSD), particularly among clinicians in the control condition resulting in a negative relationship between severity and accuracy. This relationship was expected to be weaker and non-significant in the intervention group. However, among individuals in the control condition there was a significant *positive* relationship between severity and diagnostic accuracy, $r(27) = 0.50, p < 0.01$ and a nonsignificant positive relationship among clinicians in the intervention condition, $r(25) = 0.17, p = 0.39$.

It was hypothesized that in the second vignette meant to activate the representativeness heuristic (Kimberly, disenfranchised grief), clinicians in the control condition would be more likely to engage in societal biases about who can be "bereaved," reducing their likelihood of accurately diagnosing Kimberly with a bereavement-related disorder (i.e., PGD) and perceiving

her symptoms as less severe. A positive relationship between accuracy and severity was expected among clinicians in the control condition, with a negative relationship expected among clinicians in the intervention condition. However, there was a non-significant negative relationship between severity or accuracy in the control group, $r(27) = -0.04, p = 0.85$ and the intervention group, $r(25) = -0.11, p = 0.58$.

It was hypothesized that in the third vignette (Mr. Learly) meant to activate the over-pathologizing bias, that as clinicians' ratings of severity increased, their likelihood of engaging in over pathologizing would increase, thus reducing their diagnostic accuracy of normative grief. This negative relationship between severity and accuracy was expected to be more pronounced among individuals in the control condition. However, analyses showed a significant strong negative relationship among both the control condition $r(27) = -0.53, p = < 0.01$ and the intervention group, $r(25) = -0.67, p = < 0.01$. See Table 4 for descriptive statistics of the bias activating variables and the full pattern of correlations.

Intervention Reception and Experience with Grief. Descriptive analyses revealed the majority of respondents who completed the intervention used presentations materials (92.59%; $n = 25$) and would agree (at least somewhat) that the presentation was helpful in making their diagnosis (85.19%; $n = 23$). Clinicians also agreed that the presentation taught them something new (88.89%; $n = 24$), was easy to understand (77.78%; $n = 21$), and that they would recommend the presentation to a colleague (74.07%; $n = 20$). With respect to outside materials used to aid diagnostic decision-making, the majority did not use outside materials (74.07%; $n = 20$); however, some clinicians did report using the DSM (22.22%; $n = 6$), ICD (11.11%; $n = 3$), and general internet search ($n = 1$). The vast majority of clinicians who completed the intervention reported a personal experience with grief ($n = 21$). Other experiences or factors that formed

beliefs about grief and bereavement included spiritual beliefs ($n = 6$), life philosophy ($n = 4$), professional experience ($n = 4$), and pop culture ($n = 1$).

Exploratory Analyses. Finally, exploratory analyses using the overall sample assessed for any relationship between person-level factors (e.g., age, years of experience, practice setting, theoretical orientation, age distribution of clients in practice, role distribution) and diagnostic accuracy using Pearson correlations. Results revealed no significant relationships between diagnostic accuracy and person-level variables, with the exception of a negative relationship between accuracy and practice in residential care settings, $r(54) = -0.27, p = 0.04$. Similarly, a one-way ANOVA did not demonstrate differences in accuracy between degree types, $F(2,53) = 0.75, p = 0.48$, or clinical specializations, $F(3,52) = 1.47, p = 0.23$ (see Table 2). In the intervention group, overall accuracy was not associated with the percentage of a clinician's practice dedicated to treating the bereaved, $r(25) = -0.32, p = 0.10$, their years of postgraduate experience ($r(25) = -0.24, p = 0.22$), or years of licensed practice ($r(2) = 0.30, p = 0.12$).

Discussion

In this study we aimed to test the effectiveness of a cognitive debiasing intervention for improving the diagnostic accuracy of bereaved patients and of prolonged grief disorder. The overall results are summarized here with extended discussion of each aim following the summary. We hypothesized that the cognitive debiasing intervention would be successful in increasing overall diagnostic accuracy when compared to a control condition and would reduce the occurrence of specific cognitive errors embedded within each vignette including availability, representativeness, and over-pathologizing. These hypotheses were tested with chi-square analyses and revealed non-significant effects of the debiasing intervention on overall diagnostic accuracy, as well as a non-significant effect with respect to the three embedded biases.

Further, we hypothesized that evidence of system 1 decision-making and bias activation would be most evident among individuals in the control condition, particularly when compared to those in the intervention condition. In order to evaluate this assumption, point biserial correlations were conducted to assess the association between several indicators of bias activation (i.e., time spent deliberating, severity, and confidence) and diagnostic accuracy (correct/incorrect). Results of these analyses did not reveal any significant associations between diagnostic accuracy and time or confidence ratings in either the intervention or control group. There were significant relationships between diagnostic accuracy and severity ratings in some, but not all the vignettes. This relationship was observed in the vignette meant to activate the availability bias, though the association was somewhat contrary to expectation with a positive rather than negative relationship between the two variables observed among individuals in the control condition. The expected relationship between accuracy and severity was seen in the vignette meant to assess over-pathologizing, with a significant negative association between the two variables in both groups. However, there was not a significant relationship between diagnostic accuracy and severity in the vignette intended to activate the representativeness bias.

Last, we conducted exploratory analyses to assess for effects of person-level factors, such as practice setting and years of experience, on diagnostic accuracy. Results revealed no significant relationships between diagnostic accuracy and person-level variables, with the exception of a weak negative relationship between accuracy and the percent of time spent practicing in residential care settings.

Diagnostic Accuracy

Availability. The first vignette was intended to assess the effectiveness of the intervention on the availability bias and was the only vignette where participants in the

intervention group were asked to actively engage in a debiasing exercise during their deliberation (i.e., considering reasons for and against a primary and alternative diagnosis). It was expected that without intervention, clinicians in the control group would rely on bringing to mind more “available” diagnoses, such as MDD or PTSD given the relatively higher prevalence of these diagnoses and low rate of PGD among bereaved individuals (Lundorff et al., 2017). However, while approaching significance at $p = 0.08$, there was no significant difference between the two group’s rate of accuracy, and in fact the control group appeared to outperform the intervention group (86.21% and 66.67% respectively). This was contrary to our original hypothesis that this severe case of PGD would activate an availability bias and result in poorer accuracy among control group respondents. It is possible that this active debiasing intervention of listing reasons for an against a primary and secondary diagnosis introduced doubt among participants in the intervention group, resulting in lower accuracy. However, among the incorrect responses, the expected diagnoses were offered (e.g., MDD [$n = 6$], PTSD [$n = 3$], and adjustment disorder [$n = 2$]) suggesting an availability bias may have occurred among those indicating an incorrect response. It is also possible the overall high rate of accurate diagnoses may represent a ceiling effect, given that overall only 23% of participants gave an inaccurate diagnosis. However, it is interesting that the intervention appears to be trending towards *reducing* diagnostic accuracy. This could be an artifact of our sample or could reflect a true negative impact of this debiasing technique when conceptualizing severe cases of bereavement related distress. This should be clarified in a larger sample with greater power.

Representativeness. The second vignette depicted a case of disenfranchised grief and was designed to activate the representativeness heuristic, reducing the diagnostic accuracy among individuals in the control condition who did not receive psychoeducation on

disenfranchised grief. While there was no effect of the intervention on diagnostic accuracy, the response distribution between the two groups conformed to the expected pattern. There was a higher rate of inaccurate responses in the control group (72%), while the distribution was more even among individuals in the intervention group (55%). It is possible that in a larger sample this would have resulted in a significant difference.

Over-pathologizing. The third vignette was a normative bereavement response, with elements meant to activate the tendency to over-pathologize. While the intervention did not have an effect on diagnostic accuracy, there was evidence of bias activation across both groups, as higher severity ratings were associated with poorer diagnostic accuracy. It is possible that some of the myths of normative bereavement have been sufficiently debunked within the literature, with more providers aware of normative bereavement responses.

Overall, the findings of nonsignificant results are not unusual, given a number of studies have shown non-significant effects of cognitive debiasing interventions among mental health professionals (Parmley, 2006; Jefferies-Sewel, 2015; Haderlie, 2011). In this case, as well as in others, it is possible the materials used to activate the bias or the intervention itself were not sufficient to measure or elicit a change in diagnostic accuracy between the two groups. When compared to Jenkins and Youngstrom's (2016) design, the vignettes that were used in this study were significantly longer and included all the necessary details to make an accurate diagnosis, should the provider look for them. It is possible that the shorter vignettes used in their design introduced more ambiguity and uncertainty, thus producing a stronger effect of the embedded biases.

However, it is also possible that these results indicate that cognitive debiasing is not effective for clinicians diagnosing the bereaved. In one study which assessed the diagnostic

accuracy of clinical vignettes depicting bereavement related distress, clinicians were only about 50% accurate in differentiating normative and non-normative bereavement and disagreed whether distress was outside cultural norms and if it had occurred for an abnormal period of time (50% Yes, 35% No, 15% Not Sure; Keeley et al., 2016). While null effects of debiasing have been observed among other samples of mental health professionals, it has been reliably shown to minimize errors in medical settings, improving accuracy and safety during surgical procedures (Haynes et al., 2009), diagnostic imaging (Duijm, Groenewoud, Fracheboud, & De Koning, 2007), and conducting histology (Kronz, Westra, & Epstein, 1999) just to name a few examples. While the fields of medicine and mental health share many similarities, they have important differences in their respective diagnostic processes and classification systems which may impact the efficacy of debiasing the clinical decision-making process. Rapid advancements in laboratory testing have shifted much of modern diagnosis and into laboratory tests. When a doctor completes a physical exam, they can observe symptoms and signs of illness (e.g., fever, inflammation, abnormal anatomical structure), which allows them to create a hypothesis of what may be the underlying cause of the patient's illness. While doctors create a testable hypothesis based on this process, the underlying cause is increasingly determined through diagnostic tests (e.g., imaging, biopsy).

Despite attempts to operationalize psychopathology with diagnostic classification systems such as the ICD and DSM and agreed upon diagnostic criteria, diagnosing a mental illness relies on the clinician being able to identify a cluster of presenting symptoms and decide how they map onto previously understood diagnostic constructs. It is because of this divergence from the hypothesis and objective testing of medicine, that coming to diagnoses of mental illness is so much more subjective, because clinicians lack a method to definitely test their hypotheses.

Simply put, there is no readily available blood test for depression like there is for diabetes, anemia, or other common chronic health conditions. As such, the process for diagnosing physical disorders and mental disorders diverge in some slight, but distinct ways. Because of the abstract nature of diagnosing mental disorders, there are more unknowns and fewer certainties with which to make decisions (Garb, 1998). The boundaries are ambiguous and the underlying etiology remains complex and multifactorial (Garb, Lilienfeld, & Fowler, 2005), thus the decision-making process includes more opportunities for clinical judgment and is also vulnerable to more mistakes. It is possible this type of multi-modal debiasing approach is not sufficient to improve the diagnostic accuracy of mental health diagnoses, particularly for a diagnosis with significant overlap with other psychological concepts (e.g., MDD, PTSD, adjustment disorder) and limited features making them distinct from other psychopathology (i.e., mania in pediatric bipolar disorder).

Exploratory Analyses

Results of the exploratory analyses on the relationship between person-level factors and diagnostic accuracy did not show a significant association, often with negligible effect sizes. There was a small negative significant association between diagnostic accuracy and percentage of time spent in a residential setting, though given the small sample size and weak association limited interpretations can be made from this relationship. Nonetheless, work in residential settings may result in a strong skill set working with a specific population, and thereby may reduce exposure to cases that would typically be seen and evaluated in an outpatient setting. The absence of the significant association between diagnostic accuracy and experience is consistent with other studies showing no effect of experience on diagnostic accuracy (Webb, Keeley, & Eakin, 2016; Marsh & Ahn, 2012).

Study Strengths and Limitations

This study contributes to the limited number of studies that have empirically assessed the effectiveness of cognitive debiasing interventions for improving diagnostic accuracy among mental health professionals. While there has been an adoption of debiasing in the medical field, there is far less research on the application of these techniques with mental health professionals. This study provides valuable information for future researchers attempting to evaluate other debiasing interventions with mental health professionals.

This intervention also assessed the effectiveness of the multimodal cognitive debiasing format with a new diagnostic challenge: PGD. To the author's knowledge, this is the first study to attempt to improve the accuracy of diagnosing bereaved individuals with debiasing. Given the persistent challenges faced by clinicians attempting to treat the bereaved, calls for more research to confirm the symptomology of a non-normative grief response (APA, 2013), and mythology of "normal" grief, this study aimed to provide guidance for clinicians hoping to optimize their accuracy when working with the bereaved.

This study is not without limitations. An a priori power analysis estimated that to detect a large effect, 52 clinicians would need to be randomized between the two conditions. While 56 clinicians were recruited, the original study conducted by Jenkins and Youngstrom (2016) included 137 clinicians and nonsignificant results raise concern about the possibility of an underpowered sample. This may be particularly relevant if the variability in the intervention and methodology between the two studies produced only a small or medium effect, which may not be detectable in such a small sample. Further, the sample was not large enough to detect small effects of the exploratory analyses, so we are limited in our ability to draw strong conclusions about the lack of relationship between accuracy and experience, though findings are consistent

with the prior literature (Webb, Keeley, & Eakin, 2016; Marsh & Ahn, 2012). Of note, recruitment also occurred during the COVID-19 pandemic, which may have resulted in less participation. It is possible that clinicians had less time to take on additional tasks such as participating in a dissertation research study, contributing to our small sample size. This may not be a barrier to recruitment for future research using this methodological approach.

Relatedly, the COVID-19 pandemic not only altered the structure of clinician's professional lives to provide continuity of care, but it also significantly increased the salience of grief and loss on a national scale. As of April 30th, 2021, the Centers for Disease Control and Prevention (CDC) report 571,297 people in the United States had lost their lives to the virus, with 383,518 of those deaths occurring in 2020 (CDC, 2021). This brings into question the potential effects of this historical pandemic on clinician's familiarity with and attention to bereavement and bereavement related distress. It is possible that this increased exposure resulted in clinicians familiarizing themselves with diagnostic criteria, appropriate treatments, and subsequently de-bunking previously held biases/beliefs about grief and loss.

In addition to the cultural landscape during which data collection occurred, there are several aspects of the methodology and intervention itself that may have had unexpected effects on the effectiveness of the intervention. For example, intervention dose may have been an issue as the control presentation itself was 9 minutes, with the intervention group receiving an additional 10 minutes of information. However, while the demands on sustained attention may have dampened the effectiveness of the intervention, this seems unlikely given that in the original study by Jenkins and Youngstrom (2016) the control presentation and intervention were 5 minutes and 20 minutes respectively. It is possible that fatigue during study procedures may

have impacted the benefit derived from the intervention, particularly given that the vignettes used in this study were much longer than those used by Jenkins and Youngstrom (2016).

It is also possible that a ceiling effect may have reduced opportunities for bias activation within each vignette. Each vignette included all the information necessary to assess if the bereaved individual met diagnostic criteria of PGD, which were provided in both conditions. Further, only three providers in the intervention condition did not list PGD as one of the two diagnoses they were considering. Conversely, the original multi-modal debiasing intervention included short vignettes that introduced a number of unknown variables about the case (Jenkins & Youngstrom, 2016). Providing complete information was convenient and allowed the clinician to optimize their diagnostic accuracy, but it may have reduced the presence of bias activation in each vignette.

Further, with the current design, it was not possible to measure the degree to which simply participating in a research study primed clinicians to be more diligent in their diagnostic determinations and altered their decision-making process. Instead of relying on system 1 thinking, which is known to be prone to heuristics and biases, clinicians may have engaged in a more deliberate system 2 decision-making process under the premise that they were being evaluated. Researchers may be able to overcome the dampening impact of observer effects by increasing the degree of bias activation through introducing more ambiguity in the case vignettes or manipulating factors or symptoms known to increase bias (e.g., disenfranchised grief AND symptoms that have overlap with more well-known diagnoses). Researchers may want to evaluate the effectiveness of this type of intervention in a more naturalistic setting, such as through a program evaluation inquiry. Given that the presentation provides information useful to all clinicians in practice (e.g., diagnostic criteria), perhaps it would be possible to minimize

expectancy effects by delivering the control presentation and intervention as part of professional development program and then assess the rate of bereavement-related diagnoses made across the two groups. While this may introduce its own methodological challenges, it may give more insight into any practical implications of this type of intervention.

Finally, this project utilized an active control and did not include a simple control condition without any presentation. There is research that has shown that training in diagnostic coding and increased familiarity with diagnostic criteria is a debiasing intervention in and of itself (Rezvy et al., 2008). Perhaps the control presentation had its own debiasing effect and when compared with the full debiasing intervention there were no significant additional benefits to diagnostic accuracy. However, it is possible that when compared to a simple control condition the active control condition and debiasing intervention may have shown significant effects. Further, while randomization of the vignettes was used to control for any ordering effects, due to the small sample it was not possible to assess any potential effects of ordering on accuracy or the priming effect of repeated exposure to bereaved case vignettes. A fully between-subjects design where each participant saw only one vignette could address this issue but would have necessitated a substantially larger sample.

Future Directions

The current study provides future directions for researchers and clinicians interested in making improvements in diagnostics with debiasing. While we attempted to reach a range of providers to vet the vignettes, only six providers were available to review the vignettes. More rigorous testing of vignettes may address concerns that bias activation was not sufficient to test the effectiveness of the intervention. Further, assessing the optimal “dose” of intervention may

also help clarify if the high burden of the intervention and study dampened some of the potentially positive effects of the intervention.

However, despite the nonsignificant effects of the intervention, this study demonstrates that many clinicians struggle to identify PGD and normative grief, even in a controlled setting, as 76.78% of clinicians made at least one inaccurate diagnosis. This finding confirms the importance of providing additional guidance, education, and intervention for clinicians to improve the clinical care of bereaved individuals.

Conclusions

This study assessed the effect of a cognitive debiasing intervention on the diagnostic accuracy of clinicians evaluating bereaved patients. While no significant improvement in diagnostic accuracy was detected, there was evidence of bias activation. Further, we are able to make some hypotheses about the potential limitations of the current design and make suggestions for future research. Overall, this work confirms the need for additional guidance, education, and intervention for clinicians working with bereaved individuals.

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Table 1. Bereavement Related Disorders

| | PCBD (DSM-5) | CG (Shear et al., 2011) | PGD (Prigerson et al., 2009) | PGD (ICD-11) |
|---|-------------------------|------------------------------------|---|-------------------------|
| Time duration | 12 months | ≥1 month (bereaved ≥6 months) | 6 months | 6 months |
| Criterion B: Separation distress | | | | |
| <i>yearning/longing</i> | B | B | B | B |
| <i>sorrow/emotional pain</i> | B | B | B | B |
| <i>preoccupation with the deceased</i> | B | B | B | B |
| <i>preoccupation with circumstances of the death</i> | B | C | | |
| Criterion C: Reactive distress to the stress | | | | |
| <i>difficulty accepting the death</i> | C | C | C | C |
| <i>emotional numbness/being stunned</i> | C | C | C | C |
| <i>difficulty in positively reminiscing</i> | C | | | C |
| <i>bitterness/anger</i> | C | C | C | C |
| <i>self-blame and other maladaptive cognitive appraisal</i> | C | C | | C |
| <i>avoidance of reminders</i> | C | C | C | |
| Social/Identity Disruption | | | | |
| <i>desire to die (suicidal ideation)</i> | C | B | | |
| <i>difficulty trusting others</i> | C | C | C | |
| <i>loneliness</i> | C | B | | |
| <i>considering life as empty, meaningless, and unfulfilling</i> | C | B | C | |
| <i>confusion regarding self-identity/part of yourself died</i> | C | | C | C |
| <i>difficulty moving on</i> | C | | C | C |
| CG symptoms | | | | |
| <i>difficulty caring for others</i> | | C | | |
| <i>envious of others who have not faced a loss</i> | | C | | |
| <i>experiencing symptoms of the deceased</i> | | C | | |
| <i>hearing or seeing the deceased</i> | | C | | |
| <i>excessive proximity seeking</i> | | C | | |
| <i>intense emotional/physiological reactivity to memories/reminders</i> | | C | | |

Note. Symptoms related to Criterion B and Criterion C denoted with B and C respectively.

Table 2. Sample Characteristics

| | Relationship with Accuracy | | Intervention Group <i>n</i> = 27 | Control Group <i>n</i> = 29 | Comparison | |
|---------------------------------|----------------------------|------------------|-------------------------------------|--------------------------------|------------------|------------------|
| <u>Gender</u> | | | | | χ^2 2.85 | <i>p</i> 0.24 |
| Female | | | 18 | 15 | | |
| Male | | | 9 | 13 | | |
| Transgender/Non-binary | | | 0 | 2 | | |
| Age | <i>r</i> -0.12 | <i>p</i> 0.38 | 52.41 (12.9) | 54.21 (17.31) | <i>t</i> 0.09 | <i>p</i> 0.93 |
| <u>Race/Ethnicity</u> | | | | | χ^2 6.82 | <i>p</i> 0.34 |
| African American/Black | | | 4 | 1 | | |
| Caucasian/White | | | 20 | 24 | | |
| East Asian | | | 1 | 2 | | |
| Latinx | | | 2 | 1 | | |
| Middle Eastern | | | 0 | 1 | | |
| Native American | | | 0 | 0 | | |
| Native Hawaiian/Pacific | | | 0 | 0 | | |
| South Asian | | | 1 | 0 | | |
| Other | | | 2 | 1 | | |
| <u>Professional Degree</u> | F 0.75 | <i>p</i> 0.48 | | | χ^2 2.06 | <i>p</i> 0.36 |
| PhD | | | 19 | 24 | | |
| PsyD | | | 5 | 4 | | |
| MA | | | 3 | 1 | | |
| <u>Specialty Area</u> | F 1.47 | <i>p</i> 0.23 | | | χ^2 7.55 | <i>p</i> 0.06 |
| Clinical | | | 18 | 12 | | |
| Counseling | | | 6 | 9 | | |
| Neuropsychology | | | 0 | 5 | | |
| Other | | | 1 | 3 | | |
| <u>Experience</u> | <i>r</i> | <i>p</i> | | | <i>t</i> | <i>p</i> |
| Years practicing with a license | -0.06 | 0.67 | 19.04 (14.44) | 20.31 (16.06) | 0.31 | 0.76 |
| Years of post-graduate | -0.02 | 0.88 | 19.06 (13.93) | 21.19 (16.29) | 0.53 | 0.61 |
| <u>Practice Settings</u> | <i>r</i> | <i>p</i> | | | <i>t</i> | <i>p</i> |
| Community Mental Health | -0.11 | 0.41 | 21.35 (40.09) | 9.93 (26.03) | -1.27 | 0.21 |
| Hospital- Inpatient | 0.05 | 0.74 | 7.77 (19.22) | 6.66 (18.92) | -0.22 | 0.83 |

| | | | | | | |
|---------------------------------|----------|----------|---------------|---------------|----------|----------|
| Hospital- Outpatient | 0.01 | 0.95 | 16.73 (34.29) | 12.24 (28.83) | -0.53 | 0.60 |
| Forensic | 0.17 | 0.23 | 4.04 (12.96) | 10.86 (24.28) | 1.28 | 0.21 |
| Residential Facility | 0.27 | 0.04* | 0.58 (2.94) | 1.72 (7.59) | 0.75 | 0.47 |
| School or University | 0.13 | 0.36 | 10.77 (28.27) | 26.79 (41.39) | 1.66 | 0.10 |
| Other | -0.09 | 0.53 | 38.77 (44.19) | 31.79 (41.70) | -0.60 | 0.55 |
| <u>Theoretical Orientations</u> | <i>r</i> | <i>p</i> | | | <i>t</i> | <i>p</i> |
| Cognitive | -0.13 | 0.35 | 12.69 (23.46) | 2.76 (7.02) | -2.18 | 0.03* |
| Cognitive Behavioral | -0.21 | 0.12 | 3.65 (10.91) | 5.86 (13.83) | 0.65 | 0.52 |
| Emotion Focused | -0.14 | 0.32 | 49.62 (34.26) | 27.89 (30.57) | -2.49 | 0.02* |
| Family/Systems | -0.10 | 0.48 | 0.77 (2.32) | 3.28 (7.47) | 1.64 | 0.11 |
| Humanistic | 0.02 | 0.89 | 5.58 (10.52) | 9.41 (14.78) | 1.10 | 0.28 |
| Integrative | 0.15 | 0.28 | 2.50 (8.15) | 12.24 (25.30) | 1.88 | 0.07 |
| Psychodynamic | -0.01 | 0.97 | 11.15 (23.12) | 13.38 (23.01) | 0.36 | 0.72 |
| Other | 0.20 | 0.15 | 6.35 (15.46) | 11.55 (17.68) | 1.16 | 0.25 |
| <u>Clinical Age Group</u> | <i>r</i> | <i>p</i> | | | <i>t</i> | <i>p</i> |
| 0 to 10 years old | 0.14 | 0.31 | 2.04 (5.59) | 3.03 (6.85) | 0.39 | 0.70 |
| 11-18 years old | -0.17 | 0.21 | 4.26 (7.56) | 8.03 (11.48) | 1.44 | 0.16 |
| Adults | 0.13 | 0.33 | 78.89 (26.36) | 82.45 (21.02) | 0.56 | 0.56 |
| Couples | -0.10 | 0.47 | 8.52 (13.14) | 2.59 (6.07) | -2.19 | 0.03* |
| Family/Systems | 0.001 | 0.99 | 5.93 (14.68) | 3.28 (6.98) | -0.87 | 0.39 |
| Other | 0.04 | 0.79 | 0.37 (1.92) | 0.69 (3.71) | 0.40 | 0.69 |
| <u>Role Distribution</u> | <i>r</i> | <i>p</i> | | | <i>t</i> | <i>p</i> |
| Clinical Service | -0.24 | 0.08 | 67.7 (33.8) | 81.48 (28.05) | 1.67 | 0.10 |
| Research | 0.19 | 0.16 | 5.69 (11.17) | 5.69 (14.12) | -0.001 | 0.99 |
| Teaching | 0.06 | 0.65 | 16.26 (25.68) | 4.89 (9.37) | -2.23 | 0.03* |
| Administration | 0.09 | 0.50 | 10.56 (22.76) | 4.14 (8.87) | -1.41 | 0.03* |
| Other | 0.18 | 0.18 | 0.00 (0.00) | 3.79 (16.99) | 1.16 | 0.25 |
| | <i>r</i> | <i>p</i> | | | <i>t</i> | <i>p</i> |
| Familiarity with PGD | -0.21 | 0.12 | 4.00 (1.39) | 4.17 (1.54) | 0.44 | 0.66 |

Table 3. Diagnostic Accuracy

| | | Inaccurate | Accurate | Total | χ^2 | <i>p</i> | |
|----------------------------|------------------------------------|-------------------|-----------------|--------------|----------|----------|---------------|
| Vignette 1: Mrs. Tracey | Control | 4 | 25 | 29 | 2.995 | 0.08 | |
| | Intervention | 9 | 18 | 27 | | | |
| | Total | 13 | 43 | 56 | | | |
| Vignette 2: Kimberly | Control | 21 | 8 | 29 | 1.731 | 0.19 | |
| | Intervention | 15 | 12 | 27 | | | |
| | Total | 36 | 20 | 56 | | | |
| Vignette 3: Mrs. Learly | Control | 8 | 21 | 29 | 0.218 | 0.64 | |
| | Intervention | 9 | 18 | 27 | | | |
| | Total | 17 | 39 | 56 | | | |
| Overall | Overall Diagnostic Accuracy | | | | χ^2 | <i>p</i> | |
| | | 0 | 1 | 2 | 3 | | |
| | Control | 1 | 7 | 16 | 5 | 29 | |
| | Intervention | 4 | 6 | 9 | 8 | 27 | |
| | Total | 5 | 13 | 25 | 13 | 56 | 4.463 0.22 |

Table 4. Correlations between bias activation and accuracy

| | M (SD) | | Accuracy | | | | Severity | | | | Confidence | | | | Time | | | |
|--------------------|-------------------|--------------------|----------|--------------|----------|--------------|----------|--------------|----------|--------------|------------|--------------|----------|--------------|----------|--------------|----------|--------------|
| | Control | Intervention | Control | Intervention | Control | Intervention | Control | Intervention | Control | Intervention | Control | Intervention | Control | Intervention | Control | Intervention | Control | Intervention |
| Vignette 1: | | | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> |
| Mrs. Tracey | | | | | | | | | | | | | | | | | | |
| Accuracy | 0.86 (0.35) | 0.67 (0.48) | - | - | - | - | | | | | | | | | | | | |
| Severity | 71.45 (12.92) | 69.15 (15.98) | 0.50 | 0.01* | 0.17 | 0.39 | - | - | - | - | | | | | | | | |
| Confidence | 69.24 (16.33) | 65.59 (14.35) | 0.16 | 0.40 | 0.25 | 0.20 | 0.32 | 0.09 | 0.48 | 0.01* | - | - | - | - | | | | |
| Time | 171.47 (65.05) | 656.84 (868.34) | -0.30 | 0.11 | 0.04 | 0.86 | -0.06 | 0.76 | 0.18 | 0.36 | -0.07 | 0.70 | -0.09 | 0.64 | - | - | - | - |
| Vignette 2: | | | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> |
| Kimberly | | | | | | | | | | | | | | | | | | |
| Accuracy | 0.28 (0.45) | 0.44 (0.51) | - | - | - | - | | | | | | | | | | | | |
| Severity | 63.28 (12.86) | 61.70 (16.47) | -0.04 | 0.85 | -0.11 | 0.58 | - | - | - | - | | | | | | | | |
| Confidence | 65.69 (15.52) | 64.89 (18.22) | -0.22 | 0.26 | -0.40 | 0.84 | 0.45 | 0.02* | 0.48 | 0.01 | - | - | - | - | | | | |
| Time | 164.24 (82.12) | 332.71 (897.18) | -0.09 | 0.63 | -0.19 | 0.34 | -0.17 | 0.38 | -0.13 | 0.53 | -0.26 | 0.18 | 0.23 | 0.24 | - | - | - | - |
| Vignette 3: | | | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> | <i>r</i> | <i>p</i> |
| Mr. Learly | | | | | | | | | | | | | | | | | | |
| Accuracy | 0.72 (0.45) | 0.67 (0.48) | - | - | - | - | | | | | | | | | | | | |
| Severity | 30.07 (20.49) | 26.81 (19.48) | -0.56 | <0.01* | -0.67 | <0.001* | - | - | - | - | | | | | | | | |
| Confidence | 74.52 (17.74) | 76.56 (14.99) | 0.12 | 0.55 | 0.35 | 0.07 | -0.29 | 0.13 | -0.29 | 0.14 | - | - | - | - | | | | |
| Time | 145.59 (79.83) | 217.09 (472.61) | 0.17 | 0.37 | -0.28 | 0.16 | -0.09 | 0.66 | -0.03 | 0.90 | -0.17 | 0.39 | 0.07 | 0.74 | - | - | - | - |

Appendix A

Demographics and Background Questionnaire (pre-intervention)

1. Please select your identified gender:

- Man
- Woman
- Transgender
- Other (please describe): _____

2. Please select your race and ethnicity. You may select multiple if appropriate.

- Asian American
- African American/Black
- Caucasian/White
- East Asian
- Latinx
- Native American
- Native Hawaii/Pacific Islander
- South Asian
- Other (please describe): _____

3. Age: _____

4. Professional Degree:

- PhD
- PsyD
- MS
- MA
- MD
- Other (please describe): _____

5. Specialty Area:

- Clinical
- Counseling
- School
- Other (please describe): _____

5. Number of years you have been practicing with a license: _____

6. Number of years of post-graduate experience providing psychotherapy or conducting psychodiagnostic assessments: _____

7. Please use percentages to show the distribution of your clinical work in the below settings:

- Community Mental Health.....
- Hospital- Inpatient.....
- Hospital- Outpatient.....
- Forensic.....
- Other.....
- Residential Facility.....
- School or University.....
- Total.....

*If other, please describe here: _____

7. Please use percentages to show your theoretical orientation:

- Behavioral.....
- Cognitive.....
- Cognitive Behavioral.....
- Emotion Focused.....
- Family/Systems.....
- Humanistic.....
- Integrative.....
- Psychodynamic.....
- Other.....
- Total.....

*If other, please describe here: _____

8. Please use percentages to show the distribution of your clinical work in the following age groups:

- Children, 0 to 10 years old.....
- Children, 11-18 years old.....
- Adults.....
- Couples.....
- Family/Systems.....
- Other.....
- Total.....

*If other, please describe here: _____

9. Please use percentages to show the distribution of your current role:

- Clinical Service.....
- Research.....
- Teaching.....

Appendix B

Post Intervention Manipulation Check

1. Which of the following diagnoses was not included in the stress and trauma related section of the ICD-11?
 - PTSD
 - Complex PTSD
 - Acute stress reaction
 - Adjustment disorder
 - Prolonged grief disorder

2. Acute stress reaction is a normal reaction to an abnormal situation and does not require intervention.
 - True
 - False

3. The ICD-11 will improve the clinical utility of the PTSD diagnosis for international application.
 - True
 - False

4. The presentation included a description of symptom criteria for adjustment disorder.
 - True
 - False

5. The ICD-11 will help clinicians to make determinations between pathological and normative reactions to stressful life events.
 - True
 - False

6. Availability refers to...?
 - Judging the probability that one would have expected a given outcome based on information available after the fact.
 - A debiasing intervention.
 - Making a decision based on the information most easily called to mind.
 - Decision-making error that results from comparing a current situation to a similar situation one has encountered in the past in order to determine the most likely answer.

7. Only persons who lose a significant, close, personal relationship experience symptoms of PGD.
 - True
 - False

8. Heuristics are short cuts in thinking that can influence the decision-making processes

- True
- False

9. You have a patient who is reporting depressed mood and sleep changes; however, they have also recently lost a loved one in a traumatic accident. You are considering a number of diagnoses, but your gut tells you it is PTSD. Select the best next steps.

- Go with you your gut
- Refer them to a grief counselor
- List reasons for and against each diagnosis
- Begin an antidepressant to see if they respond to treatment

10. SLoPE IN stands for...

- Stop, Look closer, Present the Evidence, Integrate findings, & come to a Neutral decision
- Six months duration, Longing for the deceased or Preoccupation, intense Emotions, causing Impairment, and violating cultural Norms

Appendix C

Post Control Presentation Attention Check

1. Which of the following diagnoses was not included in the stress and trauma related section of the ICD-11?
 - PTSD
 - Complex PTSD
 - Acute stress reaction
 - Adjustment disorder
 - Prolonged grief disorder

2. Acute stress reaction is a normal reaction to an abnormal situation and does not require intervention.
 - True
 - False

3. The ICD-11 will improve the clinical utility of the PTSD diagnosis for international application.
 - True
 - False

4. The presentation included a description of symptom criteria for adjustment disorder.
 - True
 - False

5. The ICD-11 will help clinicians to make determinations between pathological and normative reactions to stressful life events.
 - True
 - False

6. The ICD-11 will attempt to improve issues with poor definition of adjustment disorder.
 - True
 - False

7. Prolonged grief disorder will be in the ICD-11.
 - True
 - False

8. Complex PTSD is a new disorder that typically (though not required) arises after exposure to a stressor of an extreme or prolonged nature and from which escape is difficult or impossible.
 - True
 - False

9. In an acute stress reaction symptoms appear within hours to days of the stressful stimulus or event, and typically start to subside within a week after the event or following removal from the threatening situation.

- True
- False

10. I attended to the presentation and believe I can participate.

- True
- False

Appendix D

Vignette 1 (PGD Case)

Mrs. Tracey is a 67-year-old woman who presented to her primary care doctor's visit for her annual check up with her adult son. Her primary care provider noted changes in her mood, disheveled appearance, and withdrawn presentation upon examination. She became tearful when her provider inquired about her husband. Mrs. Tracey reported that her husband passed away a little under a year ago after having a major heart attack while at a remote work site that required a thirty-minute ambulance ride to the nearest hospital. Upon arriving to the hospital, and shortly after Mrs. Tracey was called, he suffered a second heart attack and doctors were unable to revive him. Mrs. Tracey was unable to participate in funeral planning or settling Mr. Tracey's estate; her adult son and his wife handled all the arrangements. Since then she has been unable to work, has broken ties with most of her and her husband's friends, and has been avoiding her family members. Before Mr. Tracey passed, Mrs. Tracey and he were active members in their church community and had an active social life that including spending time with a group of couples they had known since their children were young. Since her husband passed, Mrs. Tracey spends most of her days at home carrying her husbands' ashes in an urn with her as she moves throughout the home. Her son adds that she recently had him transfer the family's home videos to DVDs and she is usually watching them when he calls to check on her. Mrs. Tracey rarely goes out now, refusing to go to church because she "cannot believe in a god that would do this to [her] family." She reports that she is not interested in spending time with anyone in the group of couples because she is just reminded of all the old memories with Mr. Tracey and makes her wish he was with her even more than usual. Her son notes that his mother becomes upset during all family events from birthdays, holidays, and family dinners to simply picking up her grandson from school. She agrees with this report and explains that every day she spends thinking about how she wishes Mr. Tracey could be with her. Of note, she repeatedly tells her son during the appointment that she will "never get over" his father's death and cannot understand why doctors were not able to revive him again at the hospital.

During the interview, Mrs. Tracey is eager to discuss the circumstances of Mr. Tracey's death. She cries throughout the interview, stating that she feels guilty she was not able to make it to the hospital in time and that she worries constantly that she could have prevented Mr. Tracey's death if she had urged him to quit smoking and adhere to his doctor's recommended diet changes. She also reported she dreams regularly about trying to get to the hospital and fighting with the doctors about why they could not revive Mr. Tracey. Mrs. Tracey notes that while she had strong faith before losing Mr. Tracey, she found herself angry with her pastor and offended by her church community's comforting remarks that her husband was "in a better place," or that, "he is with God." Many members of the church who have reached out to Mrs. Tracey's son have relayed they are surprised she is not feeling back to herself yet. She reports intact appetite and slightly increased sleep, which she attributes to "not doing much." She is not suicidal, but wishes she and Mr. Tracey could be together again. She did not report any hallucinations or delusions. She reports she continues to care for her dog, Ollie, and leaves the home daily to take him on walks around the block.

Additional information:

Mrs. Tracey and Mr. Tracey were high school sweethearts and had a very difficult time getting pregnant. Mrs. Tracey reported having multiple miscarriages before having her only son at age

32, with Mr. Tracey being her main support during this period of time. She reflects that she blamed herself for the miscarriages and when she had her son she was extremely worried about something happening to him or Mr. Tracey.

Appendix E

Vignette 2 (PGD with non-representative griever)

Kimberly is a 19-year-old college student whose freshman year college roommate, Brooke, passed away suddenly at the end of their first year. Brooke and Kimberly were both in a very competitive program within their college and each had separate circles of friends. Nonetheless, they were friendly and spent time together studying and hanging out at their dorm. They often ate their meals together and discussed issues they were having adjusting to school. However, they spent most of their time with their respective friend groups on weekends and had few mutual friends.

While Kimberly was home one weekend, Brooke presented to student health with a high fever, nausea, and muscle aches and was suspected to have a gastrointestinal virus. Over the next couple hours she developed a rash, stiff neck pain, headache, and sensitivity to light. An RA accompanied her back to student health where she was reevaluated and sent to the emergency room. She was diagnosed with bacterial meningitis following a cerebral spinal fluid tap. She died in the hospital. Kimberly's RA and resident director informed her when she returned from home. She was not able to participate in any memorial or funeral activities as Brooke's family had services in her hometown, on the other side of the country.

Kimberly was excused from her final exams and decided to finish her course work from home. She ultimately decided to accept grades of "incomplete" after talking with her professors, with the understanding that she would turn in outstanding assignments by the first week of fall courses. Upon returning home, Kimberly became increasingly preoccupied with Brooke's passing, first talking with her family about it but eventually self isolating and spending much of her time online journaling or looking at Brooke's social media. As friends from home returned from school, they expressed their concern that Kimberly seemed to be somewhere else and, while trying to be supportive, they were struggling with how to support her as their conversations were always circuitous and almost exclusively revolving around how Kimberly could have prevented Brooke's passing. Her mother has begun to worry as Brooke passed away in mid-March and Kimberly has already been back at school for two months and does not appear to be improving. She remains emotionally numb, has not completed her work from last semester, and is still having difficulty accepting Brooke's death.

Kimberly agrees that she thinks about Brooke often, despite them not being particularly close or spending much time together socially during the school year. Kimberly reports still feeling like a piece of her is missing and she is worried about if she will be able to complete her outstanding work, on top of her assignments for this semester on which she is already falling behind. She was having trouble connecting with her friends this summer and her friends from school have expressed their concern, telling her that they do not understand why she is having such a difficult time accepting Brooke is gone. They report that while they understand Kimberly and Brooke were friendly, they do not understand why she is not feeling better, as even Brooke's close friends seem to be keeping up with school work and friends.

Vignette 3 (Normative Bereavement)

Greg Learly is an 84-year-old man whose twin sister recently passed away about eight months ago after contracting pneumonia. Greg and his sister, Allison, lived together after both their spouses died in their late seventies. Both siblings remained fairly independent until they both decided they would move into an assisted living facility last year when Allison began showing signs of age related dementia. Allison and Greg enjoyed a newfound closeness later in life and spent most of their time together playing cards, visiting with their grandchildren, bird watching, and talking about their lives. Allison became sick with a bad cough that eventually developed into pneumonia. When Allison became ill, Greg rarely left her alone for very long, continuing to regularly visit her even when she was transferred to a facility nearby with higher care capabilities. After about a week at the new facility, Allison was placed on hospice and treated with palliative care. Greg was with Allison when she passed away.

When Allison first passed away, Greg fluctuated between being sad and being in better spirits, sometimes wanting to be alone and other times laughing with his grandchildren while sharing funny stories about Allison. Greg put together a slide show of photos of his and Allison's families across her life and gave a eulogy at her funeral. He continues to keep photos and mementos of Allison's in his bedroom, sometimes bringing gifts and flowers to her gravesite. He recently confided in his eldest daughter that he felt losing Allison was like losing a part of himself. They had always been the "Learly twins," and it was strange to be on this earth without her. Greg has kept up with his regular routine as best he can, but staff has seen him sitting alone, staring out his window, and crying on days like Allison's birthday, his wife and his anniversary, and holidays. However, he brightens when interacting with others and especially brightens when talking about Allison.

Greg and Allison's children describe the whole family to be quite close. They are protective of Greg and staff relays that they are watchful for changes in personality or behavior. Since Allison passed, Greg's children have encouraged him to keep up with groups of friends with whom he and Allison had played cards and gone bird watching. Most days they call and Greg has attended regularly scheduled events, however some days he reports feeling "low" or "glum" and has stayed in his room.

Staff reports he continues to keep up with all aspects of self-care and remains one of their more independent residents. They deny any changes in his appetite or sleep habits, with Greg confirming these reports. Overall Greg reports that there are highs and lows. He still thinks of Allison and misses her, but also affirms that he still enjoys his day-to-day "puttering" around the facility. He is overall bright and oriented.

Appendix G

General Post-Vignette Measure.

1. Make a determination about the most likely diagnosis given the information in the vignette.

- Major Depressive Disorder
- Persistent Depressive Disorder
- Bipolar Disorder
- Cyclothymic Disorder
- Psychotic Disorders
- Generalized Anxiety Disorder
- Panic Disorder
- Specific Phobia
- Obsessive Compulsive Disorder
- Posttraumatic Stress Disorder
- Acute Stress Disorder
- Adjustment Disorder
- Prolonged Grief Disorder
- Borderline Personality Disorder
- Substance Use Disorder
- Other (please describe): _____

2. Rate the severity of this case using the following sliding scale:

| | | |
|-------------------|-------------------|------------------|
| Not at all severe | Moderately severe | Extremely severe |
| 0 | 50 | 100 |

3. Rate your confidence in the accuracy of the diagnosis you selected on the following sliding scale:

| | | |
|----------------------|----------------------|--|
| Not at all confident | Moderately confident | Extremely confident, absolutely certain |
| 0 | 50 | 100 |

Appendix H

Post vignette 1. Intervention Group Survey.

1. Select two preliminary diagnoses from the following list.

- Major Depressive Disorder
- Persistent Depressive Disorder
- Bipolar Disorder
- Cyclothymic Disorder
- Psychotic Disorders
- Generalized Anxiety Disorder
- Panic Disorder
- Specific Phobia
- Obsessive Compulsive Disorder
- Posttraumatic Stress Disorder
- Acute Stress Disorder
- Adjustment Disorder
- Prolonged Grief Disorder
- Borderline Personality Disorder
- Substance Use Disorder
- Other (please describe): _____

2a. Please list reasons for your preliminary diagnosis.

2b. Please list reasons against your preliminary diagnosis.

3a. Please list reasons for your secondary diagnosis.

3a. Please list reasons against your secondary diagnosis.

1. Make a determination about the most likely diagnosis given the information in the vignette.

- Major Depressive Disorder
- Persistent Depressive Disorder
- Bipolar Disorder
- Cyclothymic Disorder
- Psychotic Disorders
- Generalized Anxiety Disorder
- Panic Disorder
- Specific Phobia
- Obsessive Compulsive Disorder
- Posttraumatic Stress Disorder
- Acute Stress Disorder
- Adjustment Disorder
- Prolonged Grief Disorder
- Borderline Personality Disorder
- Substance Use Disorder
- Other (please describe): _____

2. Rate the severity of this case using the following sliding scale:

| | | |
|-------------------|-------------------|------------------|
| Not at all severe | Moderately severe | Extremely severe |
| 0 | 50 | 100 |

3. Rate your confidence in the accuracy of the diagnosis you selected on the following sliding scale?

| | | |
|----------------------|----------------------|--|
| Not at all confident | Moderately confident | Extremely confident, absolutely certain |
| 0 | 50 | 100 |

Appendix I

Post-Survey. Clinician attitudes towards intervention.

1. I learned something new.

| | | | | |
|----------------------|----------------------|----------------------------------|-------------------|-------------------|
| Strongly Disagree | Somewhat Disagree | Neither Agree Nor Disagree | Somewhat Agree | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |

2. I found the presentation helpful for making diagnostic decision in the case vignettes.

| | | | | |
|----------------------|----------------------|----------------------------------|-------------------|-------------------|
| Strongly Disagree | Somewhat Disagree | Neither Agree Nor Disagree | Somewhat Agree | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |

3. I would recommend the presentation to a colleague.

| | | | | |
|----------------------|----------------------|----------------------------------|-------------------|-------------------|
| Strongly Disagree | Somewhat Disagree | Neither Agree Nor Disagree | Somewhat Agree | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |

4. Information presented was easy to understand.

| | | | | |
|----------------------|----------------------|----------------------------------|-------------------|-------------------|
| Strongly Disagree | Somewhat Disagree | Neither Agree Nor Disagree | Somewhat Agree | Strongly Agree |
| 1 | 2 | 3 | 4 | 5 |

5. I used material from the presentation to assist me in answering questions about the vignettes.

Yes

No

5a. Please describe any other resources you used to come to your diagnoses (i.e., google search, DSM-5, ICD-10).

6. What percentage of your clinical work involves working with bereaved persons (e.g. 30%)?

7. We would like to know more about your personal experience with grief. Please describe any relevant experiences and how those experiences impacted your beliefs about death, dying, and grief.

Appendix J

[Control Presentation Link](#)

[Intervention Presentation Link](#)

Vita

Farah Joyce Aslanzadeh was born on September 10, 1991 in Farmington, Connecticut and is an American citizen. She graduated from Simsbury Public High School in Simsbury, Connecticut in 2009. She received her Bachelor of Science in Psychology from Northeastern University, Boston, Massachusetts in 2013. Then, she worked as a research assistant at the Olin Neuropsychiatric Research Center in Hartford, Connecticut before beginning graduate school in 2015. She received a Master of Science in Psychology from Virginia Commonwealth University in 2017. She is pursuing a Doctor of Philosophy degree in Clinical Psychology with a concentration in Behavioral Medicine at Virginia Commonwealth University in Richmond, Virginia.