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How Etiology and Diagnostic Label are Stigmatized: The Impacts of Childhood Trauma and "Sluggish Cognitive Tempo" on Recovery Optimism and Blame

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and "Sluggish Cognitive Tempo" on Recovery Optimism and Blame

By

Aubrie L. Patterson

Accepted in Partial Completion
of the Requirements for the Degree
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Master's Thesis

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Aubrie L. Patterson

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A Thesis
Presented to the Faculty of
Western Washington University

In partial fulfillment of the requirements for the degree of
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Abstract

Complex childhood trauma survivors often have global functioning and psychosocial issues and may be diagnosed with multiple disorders, a reality which can preclude trauma-informed treatment and lead to additional stigma. The disorder labeled "sluggish cognitive tempo" (SCT) is strongly correlated with childhood trauma and the symptoms match commonly resulting dissociative patterns. However, those with SCT may face label-based stigma that could limit opportunities for trauma-informed care. Also, they may face stigma that they are unable to recover if their disorder is stigmatized in a similar way to many mental illnesses. In a 3x3 vignette-based study featuring a story of a protagonist with dissociative, hypoactive symptoms ($N = 372$ college student participants), I investigated stigma of the label SCT (versus its proposed name change, cognitive disengagement hypoactivity syndrome (CDHS), and no label) and its perceived etiology (childhood trauma, biogenetic, or unknown). Key findings include that recovery optimism is higher when a disorder has a childhood trauma causal attribution, regardless of diagnostic label; and it is lower towards a biogenetic etiology. Inversely, blame was higher towards childhood trauma and unknown etiologies, but lower towards a biogenetic etiology. The SCT label also predicted significantly lower recovery optimism based on the name alone, but CDHS did not. Finally, baseline stigma towards the dissociative vignette protagonist tentatively suggests that people view those with dissociation as having low social status and low hope that they can recover. These novel findings have substantial clinical implications and are important research contributions that increase our awareness of how trauma recognition and diagnostic label impact perceptions.

Key words: stigma, childhood trauma, recovery optimism, dissociation, blame, sluggish cognitive tempo, mental illness, biogenetic disorders, causal attributions

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A traumatized child becomes a young adult whose symptoms can bewilder all but the most trauma-informed providers (Ford, 2017; Herman, 1992; Kezelman et al., 2016; van der Kolk et al., 2005). When a child's developing brain and behavioral patterns are shaped by chronic deprivation and fear, they are often left with a constellation of interconnected behavioral, attentional, medical, and social dysfunctions, and various functional and mental health difficulties (Courtois, 2004). For many survivors, this can include dissociation, avoidance (Ford, 2017), and physically constricted, hypoactive symptom patterns (D'Andrea et al., 2013). Likely the child, and later young adult, will receive multiple psychiatric diagnoses before trauma is recognized as the underlying cause—if at all (Courtois & Gold, 2009; Kezelman et al., 2016). This can often leave the adult survivor with piecemeal, ineffective care (Ford et al., 2021; Lomax & Meyrick, 2022). Stigma then compounds the picture, exacerbating symptoms and presenting enormous barriers to recovery (Herman, 1992; Kennedy & Prock, 2018). Not only may the childhood trauma survivor be diagnosed with multiple disorders that are heavily stigmatized (Holubova et al., 2021), but society denigrates and rejects them based on their trauma history and presentation (Kennedy & Prock, 2018). The consequences of this are important to consider. Whether they are stigmatized for their co-occurring mental illnesses, baffling presentations, trauma histories, or all the above, stigma is a powerful barrier to recovery (Martinez & Hinshaw, 2016).

One of the disorders that childhood trauma survivors may be diagnosed with is called *sluggish cognitive tempo* (SCT). SCT is characterized by "spacing out," daydreaming, staring, and a physically slow, hypoactive demeanor (Becker et al., 2016). It was originally thought to be

part of an ADHD diagnosis, but researchers are now clear that it stands alone (Becker et al., 2016). This has left some attention researchers unclear on how to explain the symptom profile, complex psychiatric comorbidities, and etiology of SCT (Mueller et al., 2014). It was historically described as largely genetic and/or neurobiological in origin (Barkley, 2014), but recent research shows that SCT has strong links to childhood trauma (Musicaro et al., 2020). Indeed, its symptoms closely resemble the dissociative and hypoactive presentations that result from complex childhood trauma (Mattos et al., 2016; Musicaro et al., 2020). In a study directly bridging childhood trauma and SCT research, SCT was significantly correlated with childhood interpersonal trauma (Musicaro et al., 2020).

Researchers have expressed concern over the potentially disparaging, pejorative connotations in the label "sluggish cognitive tempo," (Barkley, 2014; Saxbe & Barkley, 2014), a true misnomer, as cognitive processing speeds in those with SCT are no more sluggish than the general public (Barkley et al., 2022). A recent suggested name change is Cognitive Disengagement Hypoactivity Syndrome (CDHS) (Becker et al., 2022). However, a name change may be premature before more is known about how the current SCT label, a potential new label, and the disorder's perceived etiology are stigmatized. A compelling and growing body of evidence demonstrates that stigma of biological and/or genetic ("biogenetic") disorders is higher than that of environmentally caused disorders in perceived recovery potential and competence, and potentially in broad areas such as perceived status and likeability (e.g., Larkings & Brown, 2018). Therefore, it is important to investigate how perceptions such as recovery optimism might change depending on the perceived etiology of SCT.

With the present study, I ask in what ways recognition of a childhood trauma origin for a dissociative-presenting person changes recovery optimism, perceived competence and status,

likability, blame, and disbelief. I also ask what impact diagnostic label has on these perceptions. Overall, this study argues that recognition of a childhood trauma history, when present, is an important first step towards recovery for childhood trauma survivors, regardless of the types of diagnoses they may receive.

The complex sequelae of childhood trauma

The researcher Andrea Danese warned against using "simple, attractive narratives about childhood trauma" (2020). Complex trauma—which includes childhood trauma—can be defined as intentional, inescapable developmental harm that is interpersonal (i.e., from a caregiver). It is marked by a persistence of deprivation and harm in the absence of social support and scaffolding that would otherwise help a child process and integrate trauma (Ford, 2017; Kezelman et al., 2016). This lack of relational safety can lead to a physical shut-down because the child cannot downregulate a chronically activated nervous system, leaving them in a constant state of either hyper- or hypo-arousal (D'Andrea et al., 2013; Porges, 2018). It can also include a cognitive shut-down. Childhood trauma breaks a fundamental human agreement: that caregivers will tend, respect, and take responsibility for a child's wellbeing (Ford, 2017). Direct harm, chronic deprivation, and failure to protect constitute betrayals against a child who depends upon those closest to them (Freyd, 1996; Platt & Freyd, 2015). In fact, social bonds, particularly with caregivers, may be more important to survival than physical safety (Baumeister & Leary, 2017; Freyd, 1996). Thus, children often adapt to interpersonal trauma by cognitively disengaging, or dissociating, from the harm in order to psychologically prioritize and preserve the attachment (Platt & Freyd, 2015).

While at least half of children experience a form of childhood trauma, most will not develop symptoms that are part of the complex trauma sequelae (e.g., Salter et al., 2020).

Chronicity, multiple unique types (i.e., concurrent neglect and abuse), and trauma that starts at a younger age all increase the risk of biopsychosocial difficulties later in life (Rogers et al, 2016; Salter et al., 2020). One reason for these difficulties is that survival mechanisms employed developmentally can become entrenched, extreme reactions to benign situations (Ford, 2017; Teicher et al., 2003). For the young adult who did not have enough healthy social engagement as a child, an innocent facial expression can appear hostile and rejecting (Ford, 2017). If mistakes were severely punished, the slightest academic trip-up can feel like a threat to survival, activating the threat response and leading to either aggressive hyper-arousal in some, or cognitive and physical shutdown in others (Porges, 2018; D'Andrea et al., 2013). Thus, run-of-the-mill classroom and college roommate situations are can easily trigger a survivor of complex childhood trauma. Some young adults will have particularly dissociative, hypoactive presentations, which are easy to misinterpret and are often met with skepticism and disbelief (Brand, 2016; Gleaves & Reisinger, 2023; Hyland et al., 2019). This can include problems with attention and dissociation, as well as social impairments (Courtois, 2004). Dissociative young adults might be perceived as disengaged, spacey, physically slow, cognitively impaired, and socially awkward and avoidant (Courtois, 2004; Ford, 2017). Finally, young adult survivors of childhood trauma may be particularly bad at basic self-care and day-to-day functioning (Courtois, 2004). In other words, spacing out, social withdrawal, and poor global functioning may be much more than a disorder of attention.

Childhood maltreatment can lead to complex psychopathology as well (Lyssenko et al., 2018; van der Kolk et al., 2005). In fact, at least 80% of people with PTSD have an additional psychiatric disorder, and researchers suspect that rates may even be higher than this (Lewis et al., 2021). Multiple diagnoses for these wide-ranging problems results in a baffling and complex

diagnostic profile which hides the underlying cause (Courtois & Gold, 2009; Ford, 2017). While clinical expertise continues to grow (Ford et al., 2021), there are still gaps in trauma-informed clinical education that impact how consistently trauma is recognized in clinical settings (Brand, 2016; Zammit et al., 2018). This can lead to treatment that is piecemeal and not trauma-informed, even though effective and comprehensive treatment for childhood trauma sequalae exists (Courtois, 2004; Ford et al., 2021; Kezelman et al., 2016; Lomax & Meyrick, 2022).

Part of these trauma recognition challenges can be explained by the completely heterogeneous PTSD presentations, with the dissociative subtype being marked by emotional *hypo*activity, which runs contrary to the much better-understood hyper-responsive presentation of PTSD (Hyland et al., 2012; Nicholson et al., 2020). Dissociative disorders entail more than day-to-day spaciness. People with dissociative disorders experience a lack of continuity in thought, memory, emotion, perception, and disruptions in consciousness (American Psychological Association, 2013). This can include chronic spaciness, daydreaming, detachment, slow thinking, and forgetfulness (Mattos et al., 2016). Dissociative disorders are also primarily associated with a complex trauma history (American Psychological Association, 2013; Courtois & Gold, 2009; Hyland et al., 2019). D'Andrea and colleagues (2013) found that among college students, those with the most severe trauma histories (i.e., sustained at a younger age and over a longer period) had hypoactive, blunted response to a stressful stimulus, and significant global functioning impairments. Despite this, only 28-48% of people with dissociative disorders are treated, and only 25% of them feel that treatment was appropriate, leading to further hospitalizations and poorer quality of life (Leonard et al., 2005). Trauma recognition is a significant problem facing dissociative survivors (Brand, 2016; Courtois & Gold, 2009).

Sluggish Cognitive Tempo (SCT)

Attention research, in which SCT was discovered and named, has grown separately from trauma research (Musicaro et al., 2020). SCT was historically thought to be part of ADHD yet work in the last decade shows that it is completely distinct (Becker et al., 2016; Mueller et al., 2014). Children and adults with SCT display unusually high social, academic, and daily life functional impairments, which are concerning across the board (e.g., Camprodon-Rosanas et al., 2017; Jarrett et al., 2017). Of particular concern, a treatment path is unclear. Evidence shows that SCT has a minimal response to ADHD medications in children (Firat et al., 2021), and research is limited on efficacy of therapeutic interventions (Becker et al., 2016). Better understanding of SCT may hinge on its assumed etiology, one of its more mystifying aspects (Moruzzi et al., 2014; Mueller et al., 2014). One theory is that SCT is mostly genetic and/or biological (Barkley, 2014); however, longitudinal work has revealed that it is less genetic than ADHD (Moruzzi et al., 2014). Its etiology is often considered to be unknown, or the result of multiple etiological pathways (Moruzzi et al., 2014; Musicaro et al., 2020). Increasingly, researchers are appealing for a closer examination of its environmental origins, which may provide a missing link in knowledge (Becker et al., 2016; Moruzzi et al., 2014; Musicaro et al., 2020).

The SCT and childhood trauma etiology link

Growing evidence suggests that SCT could originate directly from early childhood adversity. One of the first studies to touch on this relationship found that a lack of positive affect from caregivers and increased contention in the home increased co-occurrence rates between SCT, depression, and inattention (Fredrick et al., 2019). Musicaro and colleagues (2020) built on this work to test the direct association between SCT and childhood trauma in a sample of clinically referred children with SCT. SCT had a significantly high association with interpersonal childhood trauma, even after controlling for noninterpersonal trauma and broad

psychopathology, which included ADHD, depression, and anxiety disorders (Musicaro et al., 2020). Furthermore, these authors described a theoretical, tight symptom comparison between SCT symptoms and childhood trauma-related symptoms (Musicaro et al., 2020). SCT has two symptom clusters (Becker et al., 2022). These include 1) cognitive disengagement symptoms such as spacing out, daydreaming, staring, confusion, fogginess, withdrawal, and a sleepy appearance, and 2) hypoactive physical symptoms such as constricted, slower movement. The SCT symptoms involving attentional drift such as daydreaming and staring resemble dissociative disorders that most often stem from childhood trauma (e.g., Mattos et al., 2016). The physical hypoactive symptoms in SCT resemble the physically constrictive symptoms that commonly result from complex childhood trauma (D'Andrea et al., 2013). Finally, the withdrawal-based symptoms in SCT resemble hallmark avoidance-based PTSD symptoms (Courtois & Gold, 2009). Expanding on this work, researchers recently discovered that adversity with peers and poor school support increased SCT symptoms in adolescents (Fredrick et al., 2021). The authors speculated that perhaps SCT is a "cognitive coping strategy" that allows for disconnection from the painful emotions associated with adversity and low social support (Fredrick et al., 2021).

SCT shares striking commonalities with some outcomes of childhood trauma. Like trauma-related illnesses, SCT is associated with "remarkable" impairment in global functioning, including academically and socially (Mueller et al., 2014; Becker et al., 2019). SCT and trauma histories are both associated with difficulties in emotion regulation, organization, and problem-solving (Barkley et al., 2022). Also, both people with SCT (Barkley et al., 2022) and people with complex trauma histories (Lewis et al., 2021) have a slightly but significantly lower IQ than their peers. Perhaps the most marked of their commonalities is the fact that, like dissociative trauma-related illness, SCT is thought to be transdiagnostic: it has a high comorbidity rate with virtually

all other mental illnesses (Lee et al., 2017). Finally, incident rates of SCT and trauma-related dissociative disorders are similar. SCT may be seen in anywhere from 5.1% (*general population:* Barkley, 2012) to 13.6% (*college student population*: Wood et al., 2020), with estimates differing substantially based on assessment method and reporting source (Mitchell et al., 2020). Similarly, based on a meta-analysis of 31,905 college students across 110 dissociation studies, 11.4% of students met criteria for a dissociative disorder.

While more research is needed on the link between SCT and complex childhood trauma, they are highly associated. However, SCT is typically assessed on ADHD screening forms (Barkley, 2011; Becker, 2021), and it is rare for trauma to be assessed in all but the most trauma-informed practices (Kezelman et al., 2016; van der Kolk et al., 2005), so misrecognition of a trauma history under SCT assessment would not be unusual. Also, SCT is historically viewed as being biogenetic in origin, not trauma-related. As is all-too common for adult survivors of complex childhood trauma, those with SCT therefore may face multiple stigmas (Harper et al., 2008; Holubova et al., 2021): stigma of their presentation/symptoms, stigma associated with their disorder name/diagnosis, and finally, stigma of their disorder's perceived etiology.

Stigma

Stigma towards trauma survivors versus biogenetic etiologies

If the mental health system often struggles to recognize, accurately diagnose, and treat those with childhood trauma, social stigma compounds this injury further. Stigma is a set of attitudes, behaviors, policies, and social norms that systematically reject, dehumanize, and devalue groups that those with social capital have marked as less-than (Corrigan & Watson 2002; Hinshaw & Stier, 2008; Link & Phelan, 2001).

Survivors of complex childhood trauma are uniquely stigmatized. Complex trauma survivors learn that they are less worthy of society's respect from media, family, friends, and even those in helping roles (Kennedy & Prock, 2018). Victims of childhood sexual abuse are commonly blamed for violence (Kennedy & Prock, 2018), even when sharing their story with a culturally preferred redemptive ending (i.e., involving personal growth following the assault) (Delker et al., 2020[1]). Mainstream audiences simply do not like survivors of childhood sexual abuse (Delker et al., 2020[1]). Childhood trauma survivors are also often considered to be faking or exaggerating their symptoms (malingering), and attempting to manipulate providers (Brown, 2009; Courtois & Gold, 2009; Knaak et al., 2017; Kantor et al., 2017; Mattos et al., 2016; McCormack & Thompson, 2017). Called a "second injury," these patterns can sometimes result in harsher treatment by the mental health system and general public than from their original abusers (Courtois & Gold, 2009). Finally, these experiences compound along racial and socioeconomic lines. The risk of maltreatment and challenges with recovery are higher for people who are economically disadvantaged and culturally marginalized due to a lack of needed resources and supports, and additional barriers of prejudice and discrimination (McCleary & Figley, 2017; Salter et al., 2020; Ungar, 2013).

Stigma can be uniquely harmful for those with dissociative presentations following trauma (Gleaves & Reisinger, 2023; de Filippis et al., 2022; Salter et al., 2020). People high in dissociation stigmatize themselves more than those who are low in dissociation (Holubova et al., 2021; de Filippis et al., 2022), directly impacting treatment outcomes. A community-based sample of 276 adults with dissociative disorders answered questions about barriers to beginning treatment (Nester et al., 2022). These included lack of access to care, shame, and the fear of being judged by others. Discontinuing treatment was common, due to either poor treatment by a

provider or being treated by a provider who did not believe their trauma history or dissociative symptoms were real (Nester et al., 2022). Mainstream audiences also tend to deny the existence of dissociation as a trauma-related phenomenon, insisting that a person's childhood trauma is faked (Dalenberg et al., 2012).

However, attributing a biogenetic etiology, such as that historically attributed to SCT (Barkley, 2014), increases stigma in different ways. Anti-stigma campaigns have emphasized biogenetic causal attributions of mental disorders out of hope that by likening them to medical conditions, stigma would decrease (Schomerus et al., 2012). However, while it is true that *blame* decreases against biogenetic disorders compared to environmentally caused disorders (Baek et al., 2022), the campaign has overall backfired. Research robustly demonstrates that some types of stigma are cumulatively higher against disorders with a biogenetic versus environmental etiology (Baek et al., 2022; Carter et al., 2016; Larkings & Brown, 2018; Lebowitz et al., 2013; Schomerus et al., 2012). A genetic essentialism lens helps explain this as if people are not seen as responsible for their disorders, it increases the belief that they have no ability to control their situations (Berent & Platt, 2021). This then lowers that individual's perceived competence, resulting in a lesser belief in the person's ability to recover (Berent & Platt, 2021; Larkings & Brown, 2018). These aspects of stigma are likely to be exacerbated when someone is described as having a biogenetic etiology as compared to having a childhood trauma-related or unknown etiology.

Compounding or combined stigma based on etiology and diagnostic label

This study combines stigma research into various experiences because complex trauma survivors are commonly diagnosed with multiple disorders in lieu of, or in addition to, a trauma-related illness. When this happens, survivors may feels the weight of all their stigmas combined

(Harper et al., 2008; Herman, 1992; Holubova et al., 2021). As SCT is typically seen as a mental disorder or syndrome (e.g., Becker et al., 2022), someone labeled with SCT may carry the added stigmas associated with mental illness. Furthermore, there is speculation that SCT may be thought of as an intellectual disability due to the name (Saxbe & Barkley, 2014). Were that the case, SCT could also be associated with the kinds of stigma that those with IDs may be exposed to.

Two forms of stigma often ascribed to both mental illness and intellectual disabilities are low recovery optimism and low perceived competence (Corrigan et al., 2014; Yeh et al., 2017; Pelleboer-Gunnink et al., 2021). Recovery optimism and perceived competence may be key determinants in actual outcomes (Knettel et al., 2021; Peters et al., 2020; Yeh et al., 2017). Also, both people with mental illnesses and intellectual disabilities face overall low perceived social status and patterns of dislike (Kroska & Harkness, 2021; Link & Phelan, 2001). If the SCT label is associated with mental illness and/or disability-related stigma, then we can expect that in addition to overall low perceived status and general dislike, the SCT label may be associated with a lower perceived recovery potential and perceived competence than someone without the SCT label.

General thoughts on trauma recognition and stigma patterns

Reckoning with their childhood abuse histories dominates many survivors' lives. Complex trauma survivors are often scared of being labeled with mental illnesses (Kantor et al., 2017). Many are already debilitated by shame (Platt & Freyd, 2015; Weiss, 2010); the added fear of disbelief that their complex problems originate in trauma are a significant barrier to seeking treatment (Kantor et al., 2017; McCormack & Thompson, 2017). Finally getting the right diagnosis, on the other hand, is validating. It helps survivors understand the "muddy pond" of

constant emotional distress, cognitive issues, and dysfunction that they live with (McCormack & Thompson, 2017). Accurate recognition of an illness resulting from trauma is the first step towards a survivor becoming "comprehensible to themselves:" they are no longer inherently wrong. They were traumatized (Herman, 1992; McCormack & Thompson, 2017). Therefore, if SCT is related to trauma for someone, naming this etiology may be important for self-comprehension and beginning the process of recovery.

Trauma recognition might also mitigate stigma in some ways, although research on this is minimal. For example, recognition of a childhood trauma history has been shown to decrease stigma that would otherwise be present towards people with substance use disorders (Delker et al., 2020[2]; Sumnall, 2020). However, even if validation might with trauma recognition, it may bring other types of stigma along with it (Banaj & Pellicano, 2020). This study aims to illuminate this complex picture further.

In an ideal world, none of this stigma would exist. Unfortunately, we are faced with deep cultural patterns that blame and disbelieve childhood trauma survivors, inaccurately believe that people with mental illness and intellectual disabilities are incompetent and incapable of recovery and perceive all these individuals as having low status and being unlikable. This study is an attempt to illuminate stigma in many areas, as education is an important part of combatting stigma (Kroska & Harkness, 2021).

The Current Study

This study was pre-registered on the Open Science Framework. It builds on previous research into SCT's high association with childhood trauma (e.g., Musicaro et al., 2020), as well as concerns about stigma of SCT (Saxbe & Barkley, 2014). It also builds on studies showing how a childhood trauma etiology is perceived (Delker et al., 2020[2]; Sumall, 2020) and how

people with dissociative disorders are stigmatized (Dalenberg et al., 2012; Gleaves & Reisinger, 2023; Nester et al., 2022). It fills meaningful gaps in the literature by directly studying stigma of the SCT label, comparing a childhood trauma etiology with dissociative presentations to a biogenetic etiology, and exploring the combined impacts of a little-understood diagnostic label with childhood trauma-based stigma.

In this 3 (*etiology:* biogenetic, childhood trauma, unknown) x 3 (*label*: SCT, CDHS, no label) between-subjects experimental study, participants were asked to read a vignette about a hypothetical college roommate presenting with SCT-consistent symptoms (Becker et al., 2019; Becker et al., 2022). The college student protagonist's disorder was explained by either a childhood trauma etiology, a biogenetic etiology, or an unknown etiology, and was labeled either "sluggish cognitive tempo," "cognitive disengagement hypoactivity syndrome," or with no label. I chose a college student protagonist due to the relatively high prevalence rate of SCT in college student populations compared to the general public (Wood et al., 2020), and because college student participants may better relate to such a protagonist. Also, as females are more likely than males to experience interpersonal trauma as children (Barth et al., 2013), I described a female roommate protagonist, "Mia," in the vignettes. The name Mia chosen from a list of ethnically ambiguous female names (Nameberry.com). Participants then responded to questions about how they perceived the vignette protagonist Mia, which included questions of recovery potential, perceived competence, perceived status, likability, blame, and disbelief. Socioeconomic status identity (Giatti et al., 2012), familiarity with the described condition (Corrigan et al., 2019), and a scale derived from the familiarity scale meant to capture personal similarity to the person in the vignettes were all captured as potential covariates.

With this study, I asked whether the SCT label and the biogenetic etiology are associated with higher stigma in ways that may predict poorer recovery outcomes (perceived recovery potential and competence) compared to the lack of SCT label and either childhood trauma or unknown etiology. I also examined stigmas that may be higher when there is a described childhood trauma etiology (blame and disbelief) compared to a biogenetic or unknown etiology. I hope that this research will illustrate the impact that trauma recognition (or lack thereof), as well as diagnostic label, has on stigma and the prognosis of hope towards someone struggling with dissociative symptoms.

Research Questions and Hypotheses

Research Question 1: Is there a main effect of label such that SCT is associated with higher stigma (in 4/6 categories) compared to the no label condition?

I hypothesized that the SCT label conditions would be associated with higher stigma in the categories of recovery optimism, perceived competence, perceived status, and likability compared to the no label condition, regardless of etiology (no hypothesis about CDHS).

Research Question 2: A) Is the trauma etiology is associated with higher stigma scores in disbelief and blame (compared to the biogenetic and unknown etiologies), and b) is the biogenetic etiology is associated with higher stigma scores in recovery optimism and perceived competence (compared to the trauma and unknown etiologies)?

I hypothesized that the biogenetic etiology conditions would be associated with higher stigma in recovery optimism and perceived competence (compared to the trauma and unknown conditions). Additionally, I hypothesized that the childhood trauma etiology conditions would be associated with higher stigma in blame and disbelief compared to the biogenetic and unknown

etiologies (no hypothesis regarding status and likability or impacts of the unknown etiology condition).

Research Question 3 (exploratory): *Is there an interaction effect between the SCT label + trauma etiology condition compared to the other conditions?*

[Note that this differs from the pre-registration]. The SCT label may be associated with high stigma in recovery optimism and perceived competence, and the childhood trauma etiology may be associated with high stigma in blame and disbelief; both may be associated with heightened stigma in status and likability. Therefore, due to potentially competing forms of stigma, between the etiologies and labels, interactions were approached in an exploratory manner.

Additional Exploratory Questions:

Any examination of stigma toward the CDHS label compared to SCT and no label were exploratory. Finally, I was interested in examining baseline scores across dependent variables towards Mia, as they may hesitantly represent stigma of a dissociative condition.

Method

This study was administered online to adult university students in the United States. Study methods and analysis plan were pre-registered on the Open Science Framework (OSF) prior to data collection, and then an update was made to the pre-registration prior to data analysis: https://osf.io/9nmtc/?view_only=fd0b35f1ff164044aaea367f35a59879.

Sample Characteristics

N=429 participants were recruited through the Department of Psychology participant pool at a public university in the Pacific Northwest. Participant characteristic details not described here can be found in Table 1. The mean age of this sample was 19.29, with a range of 18 to 40

years. The majority (98.9%) of participants were undergraduates, with 4 (1.1%) post-bac students. Of those who self-described their gender (1.6%), descriptions included pronouns (e.g., "he/they"), "gender nonconforming," "agender," "demigirl," and "trans man." Of the 4.3% who chose to write in their race category, 9 wrote in a Hispanic/Latinx/a/e identity yet did not choose a race category. Others wrote "Indigenous/Latine," "Eastern European," "Middle Eastern," and the rest wrote in "Multiracial" or "Mixed."

This sample was unusually diverse with regard to sexual orientation compared with national averages (Jones, 2022), although note that this is common for this particular university. 44.6% of participants identified as straight or heterosexual, and 49% identified as nonheterosexual (see Table 1 for details). Of those who chose to write in their sexual orientation, a third said they were pansexual. Other write-ins included "unsure," "asexual lesbian," "omnisexual," with 2 writing "questioning," and 2 writing "demisexual."

The mean subjective socioeconomic status of these participants was 5.29 (out of 10), SD = 1.62. This was also a mostly politically liberal sample. About half (49.1%) of participants identified as "Liberal," 17.3% as "Extremely Liberal," 16.5% as "Somewhat Liberal." 8.5% identified as "Neither liberal nor conservative," 3.4% as "Conservative," and 3.7% did not answer the political attitudes question.

Sample Size Determination

A power analysis using G*Power 3.1 for a 3x3 ANCOVA projected 372 participants needed for this study with a numerator $df = 8$, a potentially adjusted alpha of 0.02, *a priori* power set at .90, and anticipated small-to-medium effects. I oversampled to 400 to account for dropped cases, but after an 18% attention and manipulation check failure rate, I recruited an additional 29 participants.

Inclusion and Exclusion Criteria

To be included in the survey, students needed to be at least 18 years of age and be able to read and respond to surveys in English. Inclusion of their data also required them to pass at least 2/3 attention checks placed throughout the survey, and to pass both of the two manipulation checks that they were required to respond to following the etiology and label manipulations. 50 participants failed at least one manipulation check, and 13 failed 2 or more attention checks. These 63 participants were excluded from data analysis. Cases were not deleted for taking the survey "unreasonably fast," as I had preregistered due to an absence of an objective way to measure this (the SD was larger than the mean for time spent taking the survey). My final participant count was therefore *N*=372.

Experimental Procedures

I ensured university Institutional Review Board approval of the study protocol prior to recruitment. Students who chose to participate were directed to the survey in Qualtrics.com. They received course credit upon completion of this approximately 20-minute study, consistent with research management recommendations. Alternative options for course credit were also made available.

Participants provided informed consent and then read the baseline vignette about "Mia." They were then randomly assigned to read one of nine possible vignettes in this 3 (*etiology*: childhood trauma, biogenetic, unknown) x 3 (*Label*: SCT, CDHS, no label) between-subjects design. This was followed by two manipulation check questions. They then answered questions about their attitudes towards Mia, which included questions about recovery optimism, perceived competence and status, likability, blame, and disbelief. Questions followed about their familiarity with someone like Mia, and a question about how personally similar they felt they

were to her. Finally, participants answered questions about demographics, political affiliation, and socioeconomic status identity. Debriefing included a description of sluggish cognitive tempo and an overview of complex presentations that can follow childhood trauma. Trauma recovery, psychotherapy, and self-care resources were offered at the end of the study and to anyone who chose to end the study early (although there were no early dropouts).

Materials

Full materials are included in the Appendix.

Vignette Describing the Roommate

All participants were asked to read a 297-word vignette in which the 1st person narrator was getting a roommate, Mia. The vignette described Mia's behavior while getting to know her over time. The first-person narrator described her spacey, slow-moving, forgetful SCT-consistent symptoms (Becker et al., 2019; Becker et al., 2022) using language accessible to a college student.

Label and Etiology Manipulations

The vignette endings varied by what her disorder was called ("sluggish cognitive tempo," "cognitive disengagement hypoactivity syndrome," or no label), and the disorder's described etiology (childhood trauma, biological/genetic, or an unknown origin), with nine total study conditions.

Manipulation Checks

Participants were immediately asked two multiple-choice questions intended to gauge comprehension of the vignette manipulations: *1.In the story, what was the name of Mia's condition?* a) Sluggish cognitive tempo, b) Cognitive disengagement hypoactivity syndrome, c) it was never named. *2. In the story, what caused Mia's condition?* a) Childhood trauma, b)

Genetic: it was called a "genetic brain disorder," c) The cause was unknown. A similar manipulation check was used in a vignette-based stigma study (Calebrese et al., 2018).

Measures

Full measures are included in the Appendix.

Recovery Optimism

Recovery optimism is the opposite of prognosis pessimism, which is the construct typically measured in similar vignette-based studies (i.e., Baek et al., 2022). I chose to phrase this positively and in terms of recovery rather than prognosis. This construct was measured using a combination of two scales, with five items in total. Cheng (2014) created a scale called "Essential and Enduring" that asked three questions. The first, "How long do you think she will have this problem?" has a possible range of 1-3 months to more than 2 years, asked on a 5-point scale. However, this was answered almost as a constant by my participants ($M = 1.34$, $SD= 0.68$), and violated both skew and kurtosis, so it was dropped from the composite score. The second two questions were reworded in the form of statements for continuity throughout this study. "Mia's condition is treatable " and "It would be easy to treat Mia's condition" were assessed on 7-point Likert scales (1= *definitely not*, 7= *definitely yes*). Yeh et al. (2017) created two items as part of a "Nurturance" subscale assessing treatment prognosis, which were reworded in the form of statements. "I believe that Mia would improve if given treatment and support" and "I believe that Mia can eventually recover" were measured on a 9-point Likert scale (1= *do not believe at all*, 9= *believe very strongly*). The 3rd item stating that it would be "easy" to treat Mia's condition was answered with a low mean of 2.77, versus the relatively high means for the other 3 items that asked about the *possibility* of treating her condition. Dropping item 3 raised the Cronbach's Alpha from α= .73 to α= .79. Furthermore, later ANCOVA assumption testing

demonstrated that using these 4 items together made the variable fail the test of homogeneity of regression but dropping item 3 led to the variable passing the assumption. For multiple reasons, the final composite recovery optimism score contained just three questions, with a good/excellent Cronbach's Alpha of α = .79.

Perceived Competence

I created a scale of six items to address broad competence including intelligence and success with personal care, daily tasks, organization, and academic functioning. These were based on the work of Kroska and Harkness (2021), Pelleboer-Gunnink et al. (2021), and Yeh et al. (2017). Items were measured on a 7-point Likert scale (1=*Strongly disagree*, 7=*Strongly agree*). They included, "Mia is generally competent," "Mia is intelligent," "Mia takes good care of her health (e.g., cooking, eating a balanced diet, managing personal hygiene, going to the doctor or dentist)," "Mia is successful at completing day-to-day tasks (e.g., paying bills, cleaning, doing laundry)," "Mia is organized (e.g., shows up on time, turns things in on time)," and "Mia performs well in school and/or at work." These six items had good internal reliability, Cronbach's α = .77.

Perceived Status and Likability

Kroska and Harkness (2021) created a scale measuring status, likability, and competence as a general measure of mental illness stigma. I used the status and likability subscales of this measure. A slider included the statement, "I feel Mia is:" and each end of the slider (1-9) included one word from the following word pairs for Status (1=*follower, 9=leader, 1=low status/ 9=high status, 1=not respected/ 9=respected*) and Likability (1=*inconsiderate/ 9=considerate, 1=uncooperative/ 9=cooperative, 1=unlikable/ 9=likable, 1=unpleasant/ 9=pleasant*). Cronbach's Alpha was poor/questionable (α= .58) for the 3 status items and

acceptable/good (α= .79) for the 4 likability items. They were each combined into distinct subscales despite the relatively low internal reliability of the status variable, as item-total correlations did not indicate that dropping any item would substantially improve reliability.

Blame

Blame was measured using the blame subscale of the Attribution Questionnaire-27 (Corrigan, 2012), reworded in the form of statements. Statements included, "I would think that it was Mia's own fault that she is in the present condition," "Mia is in control of her present condition" and "Mia is responsible for her present condition" Questions were asked on a 9-point Likert scale (9= *very much*). These items had questionable internal reliability (α = .61). These 3 items included "It is Mia's own fault that she is in the present condition," "Mia is in control of her condition," and "Mia is responsible for her condition." Item-total correlations did not indicate that dropping any item would substantially improve reliability. Therefore, the blame items were combined into a composite variable.

Disbelief

To measure disbelief, I created four items based on the focus group work by Crowe et al. (2015). Items were scored on a 7-point Likert scale (1= *Strongly disagree*; 7=*Strongly agree)* and included, "Mia is faking her condition," "Mia is exaggerating her symptoms," "Mia is abusing the system and taking advantage of support by acting like that," and "Mia's condition is just an excuse to get out of doing things." These items had excellent internal reliability, α= .9. These 4 items were combined into one disbelief composite variable.

Familiarity

I adapted the brief contact report (familiarity) scale to be applicable to any condition or etiology, as opposed to mental illness context it is traditionally applied to (Holmes et al., 1999)

(see Appendix for all items). I did not include all items in the original scale, and edited wording

for the sake of face and ecological validity in the context of a college roommate. Participants

were asked to indicate each level of closeness or contact they have had with someone like Mia.

For example, "I have a relative who is similar to Mia," and "I have attended class or worked side

by side with someone similar to Mia." The final familiarity score was the highest score indicated

on a rank-ordered list. For example, if someone chose "I have a relative who is similar to Mia"

(rank order score = 9), but they also chose "I have learned about people who are similar to Mia"

(rank order score = 3), then their familiarity score would be 9, as this was their highest score.

Subjective Socioeconomic Status Identity

Subjective socioeconomic status (SES) may be a better predictor of actual SES than

objective measures (Rubin et al., 2014). The MacArther Scale was used (Giatti et al., 2012),

which asks participants to rank themselves on a ladder, choosing the rung that they feel best

represents their social status compared to other people in the United States. There were ten

possible scores corresponding to ten rungs of the ladder presented to participants. These were

rank-ordered and combined into a continuous measure, with descriptive statistics presented in

Table 2.

Similarity

The item, "I am similar to [her]" was removed from the brief contact report (Holmes et

al., 1999) and replaced with a continuous measure item for increased specificity: "Please indicate

the extent to which *you* are similar to Mia" (1=*not at all similar,* 9= *completely similar*). This

item was measured separately from the rest of the items in the contact report and called

"similarity."

Data Cleaning and Preparation

Data cleaning and preparation was done in R Studio.

I checked the internal reliability of dependent variable items before combining them into mean-scored composite variables, as was described in Measures. I examined intercorrelations and question wordings to make sure variables were scored in the right direction. There were no variables that needed to be reverse scored. It was noted during data preparation that the status and likability variables had 6 NAs between them, SES had 21 NAs, and Similarity had 1 NA. In examination of the status and likability items, it was likely that people missed these due to being asked on a slider scale, with the middle score (5) set by default. As there was no forced response, I assumed that these 6 people had failed to click on the middle score when they meant to select it, so I rescored these 6 NA scores to "5." The SES and similarity missing values were left as-is because there was no justification to change them, and they could be accounted for in testing.

Assumption Testing for ANCOVA

I tested applicable ANOVA and ANCOVA assumptions following guidance by Tabachnick and Fiddell (2007, p. 385).

All dependent variables except for likability had univariate outliers in visual examination of boxplots which was confirmed by z-scoring them and examining whether values were beyond +- 3.29 standard deviations from the mean (Kim, 2013). Variables with univariate outliers were winsorized in order to run tests on both winsorized and un-winsorized variables for comparison, following procedures outlined by (Leys et al., 2019). Winsorized variables were not used as there was no significant difference between them in the results (although the disbelief variable was kept winsorized due to failure of a later assumption). The Mahalanobis Distance test was run to test for multivariate outliers. 7 multivariate outliers were identified, which were examined individually. It seemed there was a pattern of responding extremely to individual questions

which could indicate people not considering their responses. A unique dataset was created without these 7 outliers in order to compare output on later tests, but there was no marked difference in output, so the multivariate outliers were kept in analyses.

Variables were examined for normality using visual examination of histograms and by running tests of skew and kurtosis. Variables outside the recommended cutoff for skew of +-2 and kurtosis of +-7 for sample sizes over 300 (Kim, 2013) need to be transformed. The 3-item recovery optimism variable appeared normally distributed, as did competence, status, likability, and SES, and they all passed skew and kurtosis checks. Blame and similarity appeared positively skewed, and familiarity had a bimodal-appearing distribution, but they all passed skew and kurtosis checks. The only variable that had higher than recommended kurtosis was disbelief, which was positively skewed (kurtosis = 7.7). I tested skew and kurtosis on the winsorized version of disbelief, and it was below the cutoff, kurtosis = 5.52. Therefore, it was decided to use the winsorized version of disbelief in analyses going forward.

Homogeneity of variance was tested by running Levene's test of homogeneity of variance between the 9 condition groups. The blame variable violated this assumption, $F(8) = 2.29$, $p=.01$. Running the same test on the winsorized version of blame produced a slightly better result, $F(8) = 2.29$, $p=.02$, and transforming the winsorized variable using a logarithmic transformation resulted in blame passing the test of homogeneity of variance, $F(8) = 2.29$, $p=.06$. However, the log transformed blame produced similar results in comparison, so to improve interpretability of visuals, the untransformed version was used (Figure 7).

The ANCOVA assumes that if there is more than one covariate, they should not be highly correlated with each other. When this happens, one must be dropped (Tabachnick & Fiddell, 2007, p. 387). In an examination of multicollinearity (see Table 4 and Figures 3 and 4), similarity

and familiarity were positively correlated (r=.29, p<.001). The ANCOVA also assumes that

there are linear relationships between covariates (CVs) and dependent variables (DVs), with at

least one being statistically significant (Tabachnick & Fiddell, 2007). A CV that is not

significantly correlated with any DV will use a degree of freedom and strip power from

statistical tests (Tabachnick & Fiddell, 2007). Inspecting these relationships showed that

similarity was significantly correlated with more of the dependent variables than was familiarity

(see Table 4 and Figure 4). Therefore, I dropped familiarity. Also, SES was not significantly

correlated with any DVs, and it also violated the ANCOVA assumption of homogeneity of

regression in the competence and likability DVs, so it was also dropped as a covariate.

Homogeneity of regression was tested by running linear models between each DV predicted by

each covariate plus the interaction between the covariate and the 9 conditions. As indicated in

Measures, recovery optimism only passed the test by using the 3 selected items in the final

composite score.

Final variables. The final DVs included a 3-item z-scored recovery optimism item,

competence, status, likability, a logarithmic-transformed blame variable, and a winsorized

disbelief variable. The remaining CV was similarity (see Table 3 for final variable descriptives).

Analytic Approach

Hypotheses were tested in JASP 0.16.4, with figures created in R Studio.

Consistent with the pre-registration, hypotheses 1&2 were tested by running a 2x3

ANCOVA predicting each dependent variable, with the following independent variables: main

effect of label (SCT, no label), main effect of etiology (biogenetic, trauma, unknown), the

interactive effect, and the covariate (Similarity). The CDHS condition was removed from the

label independent variable to increase interpretability of the findings and as there were no label-

based hypotheses for CDHS (it was analyzed within the exploratory questions below). Planned custom contrasts were run to examine hypothesis 2 (main effects of etiology). Contrasts can be specified according to hypotheses (called "custom contrasts" or "user-defined contrasts") (Bolker, 2018; Bruin, 2006) and it is not necessarily recommended that are orthogonal if it means forgoing testing contrasts that best answer research questions (Howell, 2012; Meteyard & Davies, 2020). Defining contrasts in advance results in more power allocated to tests, reduces the risk of type 1 error rates, and the practice requires researchers to make theoretically sound predictions (Howell, 2012; Meteyard & Davies, 2020). Results for hypotheses 1-2 can be seen in Tables 5 and 6, respectively. Full results of the omnibus 2x3 ANCOVA for each DV are presented in Tables 8-13.

Exploratory questions were analyzed by running a 3x3 ANCOVA predicting each DV, using the three label conditions and the three etiology conditions, and adjusting for similarity. Post-hoc pairwise comparisons with a Holm adjustment were examined in the presence of a statistically significant main effect of label or interaction between etiology and label.

Results

See Table 7 for a summary of results by dependent variable.

Hypothesis 1*: The SCT label conditions will be associated with higher stigma in the categories of recovery optimism, perceived competence, perceived status, and likability, compared to the no label condition.*

Recovery optimism. There was a statistically significant main effect of label detected on the z-scored recovery optimism question for label while controlling for similarity, $F(1, 232)=9.64$, $p=.002$. The SCT label was associated with a significant *decrease* in recovery

optimism compared to no diagnostic label, regardless of etiology (see Figure 5). Hypothesis 1 was supported for recovery optimism.

Perceived Competence. There was no statistically significant main effect of label on perceived competence, $F(1, 232) = 2.05$, $p= .154$. Hypothesis 1 was not supported for competence. Similarity was the only predictor of perceived competence scores, meaning that the more similar someone felt they were to Mia, the more competently they rated her ($F(1, 232) = 5.14$, $p=.02$). However, this was with a small effect ($r= .15$).

Perceived Status. There was no statistically significant main effect of label on perceived status, $F(1, 232) = 1.49$, $p= .224$. Hypothesis 1 was not supported for status. The only predictor of perceived status was similarity, where the more similar someone felt they were to Mia, the higher they rated her status, $F(1, 232)=5.70$, $p=.018$. However, this was with a small effect ($r=.12$).

Likability. There was also no statistically significant main effect of label on likability, $F(1, 232) = 0.11$, $p= .736$. Hypothesis 1 was not supported for likability. The only predictor of likability was similarity. The more similar people rated themselves to Mia, the more they liked her, with a small effect ($r=.22$): $F (1, 232) = 10.29$, $p=.002$.

Blame and disbelief (no hypotheses). There were no hypotheses about how the label IV would impact blame or disbelief scores, and there was no statistically significant main effect of label on either blame or disbelief when examining the omnibus test results (see Tables 11 and 12 for 2x3 ANCOVA output).

In summary, there was a statistically significant main effect of label on only one stigma category, recovery optimism. The SCT label (compared to no label) diminished participant confidence that Mia would recover if given treatment and support.

__Hypothesis 2__. The biogenetic etiology conditions will be associated with higher stigma in recovery optimism and perceived competence compared to the trauma and unknown conditions. Also, the trauma etiology condition will be associated with higher stigma in blame and disbelief compared to the biogenetic and unknown etiologies.

Recovery Optimism. There was a statistically significant main effect of etiology on recovery optimism, F (2, 232) = 13.40, p<.001 (see Figure 5). On further inspection of the planned custom contrasts, both were statistically significant. Contrast 1 (biogenetic vs. trauma+ unknown) was significant, t (232) = -4.10, p<.001. This indicates that when it is known that a person's disorder has biological or genetic causes, people have significantly *lower* recovery optimism for them compared to when people believe the person's disorder resulted from trauma/ the cause is unknown. Alternatively, when a person's disorder is suspected to result from childhood trauma, there is *higher* recovery optimism than when it is perceived as biogenetic or the cause is stated as "unknown," as seen in the statistically significant Contrast 2, t (232)= 4.32, p<.001. Hypothesis 2 was fully supported for recovery optimism.

Perceived Competence. There were no statistically significant main effects of etiology on competence. The planned custom contrasts verified this, as neither was statistically significant (see Table 5). Therefore, the biogenetic etiology did not predict lower perceived competence compared to the trauma or unknown etiologies.

Blame. There was a statistically significant main effect of etiology on blame, F (2, 232) = 4.77, p= .009. Further examination of the planned custom contrast 1 revealed that the biogenetic etiology was associated with lower blame than the trauma and unknown etiologies, t(1, 232) = -2.71, p=.007, which supported Hypothesis 2. In other words, people are more likely to blame someone for their symptoms and/or disorder if they think it is either a result of trauma or if it has

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an unknown etiology than if their disorder is suspected to have a biogenetic origin. There was no statistically significant difference between how much people blame a person with a disorder caused by trauma compared to either a biogenetic or unknown origin however, which means that there was only partial support for Hypothesis 2 for blame.

Disbelief. There was a statistically significant main effect of etiology when predicting disbelief, F (2, 232) = 3.27, p=.04. However, neither planned contrast was statistically significant, meaning there was not support for Hypothesis 2 in line with how I phrased the hypothesis and set up the contrasts. I examined post-hoc comparisons regarding disbelief alongside the exploratory tests, reported below.

Status and likability (no hypotheses). There were no hypotheses predicting either perceived status or likability from etiology, and there were no statistically significant main effects of etiology on either variable when examining the 2x3 ANCOVA test results (see Tables 10 and 11).

To summarize, Hypothesis 2 was fully supported for the recovery optimism, partially supported for the blame and disbelief variables, and not supported for the competence variable.

Exploratory Analyses

Interactions between label and etiology in the 2x3 ANCOVA. In examination of the omnibus interaction effects (Tables 8-13), none of the interactions were statistically significant. Therefore, no post-hoc tests were conducted.

CDHS-related exploratory analyses (pre-registered). I had no hypotheses regarding the addition of the cognitive disengagement hypoactivity syndrome (CDHS) label, so I examined the effects of the CDHS label by running a 3 (*Etiology*: Trauma, Bio/genetic, Unknown) x 3 (*Label*: SCT, CDHS, No Label) ANCOVA, controlling for similarity. I examined post-hoc comparisons

with a Holm adjustment only on those variables which had statistically significant main effects for label or interactions between the two IVs (etiology main effects have been analyzed and reported). Results for those post-hoc tests are reported below.

Recovery Optimism. There was a statistically significant main effect of label on recovery optimism, $F(2, 362)=4.42$, $p=.013$. Post-hoc comparisons revealed that the significant difference was between the SCT and No Label (not the CDHS label), which was reported for Hypothesis 1, and is reported again here as $t(362) = -2.971$, $p_{holm}=.009$. No other significant label main effects or interactions were present for recovery optimism. In other words, while the SCT label is associated with a statistically significant decrease in recovery optimism compared to someone having no diagnostic label, CDHS is not. CDHS does not significantly lower recovery optimism, unlike the SCT label.

Competence, status, likability, blame, and disbelief. In examining the results of the 3x3 ANCOVA, there were no statistically significant main effects of label on any of these variables with the addition of the CDHS label; there were also no statistically significant interactions between label and etiology with the addition of a new label. Because there were no statistically significant label main effects or interactions (given the CDHS label) for competence, status, likability, blame, or disbelief, post-hoc tests were not analyzed.

Exploratory questions about disbelief. I pre-registered a question about how etiology and label might interact in predicting disbelief, but there were no statistically significant interactions for disbelief (or any DV). However, there was a main effect of etiology on disbelief. Non-preregistered post-hoc comparisons of the 3x3 ANCOVA revealed that the unknown etiology was associated with significantly higher disbelief than the biogenetic etiology, $t(1, 371) = -2.96$, $p_{holm} = 0.01$. Also, disbelief was higher towards the unknown etiology than it was towards the

childhood trauma etiology, $t(1, 371) = -2.41$, $p_{holm}=0.03$. This only partially supported Hypothesis 2 in that disbelief was higher towards the unknown than the biogenetic etiology, but the finding that the unknown etiology was higher than the trauma etiology was not in line with any hypotheses.

Summary. It can be concluded from these exploratory analyses that stigma did not significantly change for this sample based on the addition of the CDHS label for any of the dependent variables or tests. Also, disbelief only varied in ways that did not meaningfully influence the overall aims of this study, so this exploratory finding will not be interpreted in the discussion, although a figure is still provided (Figure 7).

Discussion

Study purpose and summary of findings

With this quantitative, vignette-based experimental study, I aimed to illuminate how someone like Mia—someone with a dissociative presentation—is stigmatized based on the described etiology of her disorder (childhood trauma, biogenetic, or unknown). I also wanted to know how stigma changes based on the presence/absence of the diagnostic label "sluggish cognitive tempo" versus no diagnostic label, and if that stigma is any better with the label "cognitive disengagement hypoactivity syndrome," the suggested name change for SCT. As these findings demonstrate, stigmatizing attitudes towards Mia vary by her disorder's name and described etiology. This study contributes novel and important findings to the research and clinical communities.

Consistent with my hypotheses and previous research regarding etiology-based stigma (Baek et al., 2022; Delker et al., 2020[2]; Larkings & Brown, 2018; Schomerus et al., 2012; Sumnall, 2020; Vogelman, 2020), people reported higher recovery optimism when childhood

trauma was given as the probable cause of Mia's disorder compared to either biogenetic or unknown causes, regardless of the disorder's name. Also consistent with my hypotheses, people had lower recovery optimism in Mia when her disorder had a biogenetic etiology compared to either a childhood trauma or unknown etiology, also regardless of the disorder's name. In fact, these results were almost mirror images of each other, with trauma predicting baseline recovery optimism roughly half a standard deviation above the mean, and biogenetic predicting recovery optimism roughly half a standard deviation below the mean (see contrast estimates, Table 6). Also consistent with prior research (i.e., Baek et al., 2022; Banaj & Pellicano, 2020; Vogelman, 2020) and partially supporting my hypotheses, people were also more likely to blame Mia for her problems when they thought she had a trauma history or unknown etiology versus when she had a biogenetic etiology, in which case they blamed her less.

The second purpose of this study was to examine stigma against the disorder sluggish cognitive tempo compared to when the disorder was not labeled, and in further exploratory tests, to when it was given the cognitive disengagement hypoactivity syndrome (CDHS) label. With this study I wondered, overall: what is the impact on stigma for a person with dissociative, hypoactive symptoms, when people find out that her disorder is either called SCT, CDHS, or is not called anything at all? As I hypothesized based on prior research into stigma of mental illness and disability (Corrigan et al., 2003; Kroska & Harkness, 2021; Okeeffe et al., 2016; Pelleboer-Gunnink et al., 2021; Yeh et al., 2017), people had far lower recovery optimism for the SCT label compared to no label. Also, CDHS did *not* lower recovery optimism (or increase any type of stigma), whereas SCT did. Despite this finding, however, there was a surprising lack of stigma variability between the label conditions. Contrary to what I hypothesized, there was not an

increase in stigmatizing attitudes in the competence, status, or likability categories towards the SCT label compared to no label.

The third purpose of this study was to examine stigma towards a childhood trauma survivor when she is given a diagnosis like sluggish cognitive tempo, a disorder we now know is seen with comparatively low recovery optimism. Childhood trauma survivors suffer from stigmatizing attitudes like blame and disbelief, and they are likely to be diagnosed with multiple disorders in their lifetime, each of which may also be stigmatized uniquely (Herman, 1992; Holubova et al., 2021). With this study, I wondered if there are compounding effects of stigma between the SCT label and the childhood trauma etiology. Although there were no statistically significant interactions indicating "compounded stigma," there were changes to recovery optimism and blame between etiology conditions; and there was also decreased recovery optimism towards the SCT label compared to the other labels.

Finally, an implicit purpose of this study was to explore how a person with dissociative, hypoactive symptoms is stigmatized at baseline, regardless of how her disorder is described. Across conditions, people rated Mia as having an overall low social status (see Table 2 for descriptives), and the majority of participants, regardless of condition, believed that it would take Mia over 2 years to recover (demonstrating low baseline recovery optimism; see Figure 1). This is somewhat consistent with growing recent research showing that people with dissociative disorders may be stigmatized quite profoundly (Gleaves & Reisinger, 2023; de Filippis et al., 2022). However, and contrary to expectations given previous research (Dalenberg et al., 2012; Holubova et al., 2021; Nester et al., 2022; Salter et al., 2020), there was global *low* blame and disbelief towards Mia.

Interpretations and implications of these findings are discussed below.

Interpretations and implications of findings

Impacts of perceived etiology and diagnostic label on recovery optimism.

Why recovery/prognosis optimism matters. This study showed that recovery optimism is hugely impacted by perceived etiology and less so, but still significantly, by diagnostic label. Previous researchers have speculated that recovery optimism (the reverse of prognosis pessimism, as it is typically measured) may have a significant impact on real treatment outcomes (Knettel et al., 2021; Peters et al., 2020). In a systematic review of causal attributions to psychosis, a theme emerged showing that psychosocial attributions, which often include trauma, are consistently associated with lower prognosis pessimism which may in turn be associated with a higher likelihood of engaging in therapy (Carter et al., 2016). However, a competing finding is that prognosis pessimism is shown to be associated with greater likelihood to take medications (Carter et al., 2016). Generally, however, optimism and hope motivate people to seek help (Sælør et al., 2014) and are retrospectively reported as mindsets that contributed to ultimate recovery (Siling et al., 2021; Truss et al., 2022). Part of this may be because of the finding that when someone is viewed as capable of recovering, people report being more willing to help them (Yeh et al., 2017). These studies show an overall positive trend between recovery optimism and treatment outcomes.

Label impacts: "Sluggish cognitive tempo" lowers recovery optimism, but "CDHS" does not. This was the first study to test stigmatizing attitudes towards SCT. I found that there was significantly less hope that recovery was possible for someone with SCT than for someone whose disorder was not named or had the CDHS label. Perhaps this is because SCT might be viewed as either a severe mental illness or an intellectual disability, both of which are seen with low recovery optimism (Corrigan et al., 2014; Yeh et al., 2017; Pelleboer-Gunnink et al., 2021).

Or, perhaps it is viewed as being biogenetic in origin, as it was historically (Barkley, 2014), which this study shows decreases recovery optimism. One thing is evident from this study: CDHS appears to be a more neutral label that is not inherently associated with reduced recovery optimism.

The positive impacts of childhood trauma recognition on recovery optimism. Complex trauma survivors have stated in qualitative work that trauma recognition is vital to their wellbeing and healing journeys (McCormack & Thompson, 2017). They are used to and afraid of being diagnosed with various mental illnesses, accused of lying about their trauma histories or symptoms, and being blamed as well (Kantor et al., 2017; McCormack & Thompson, 2017). The current study empirically underscores the importance of trauma recognition that survivors (McCormack & Thompson, 2017) and clinicians (Herman, 1992; Brand, 2016; Courtois & Gold, 2009; Ford et al., 2021; Zammit et al., 2018) alike are asking for. In this study, attributing a childhood trauma etiology to Mia's disorder significantly improved recovery optimism for her, and this did not change even when she was given a diagnostic label (SCT) that on its own *decreases* recovery optimism. It has been demonstrated in two known studies that by explaining that there was a childhood trauma history in specific terms, stigmatizing attitudes towards substance use decreased (Delker et al., 2020[2]; Sumnall, 2020). This study also demonstrated what seems to be a mitigating effect of disorder-based stigma: not only does it improve recovery optimism to recognize childhood trauma as a disorder cause, but it does so even when someone is diagnosed with a stigmatized label.

Importance of trauma screening even when a given diagnosis is seen as biogenetic/fixed. A key clinical implication of this is the importance of trauma screening in diagnostic situations, perhaps especially when diagnosing a disorder that is assumed to have a biogenetic etiology, as

biogenetic disorder stigma has been demonstrated in providers as well (Larkings & Brown, 2018). Complex trauma can be a key etiological factor in almost any mental illness (Lyssenko et al., 2018; van der Kolk et al., 2005), including those that are seen as biogenetic. Schizophrenia, for example, is traditionally seen as highly biogenetic/fixed and is stigmatized accordingly the moment it is recognized (Okeeffe et al., 2016). However, like sluggish cognitive tempo (Musicaro et al., 2020), schizophrenia has an extremely high association with a childhood trauma history (Cancel et al., 2019). For a childhood trauma survivor diagnosed with schizophrenia (or any other mental illness), recognizing their trauma history as a possible cause for that illness might similarly assuage biogenetic-based stigma as it did with SCT.

Mitigating the negative impacts of biogenetic etiologies on recovery optimism. When there is no childhood trauma history, however, there are ways to mitigate biogenetic disorder-based stigma. The current study found that biogenetic disorders are viewed with significantly lower recovery optimism compared to a childhood trauma etiology, which is consistent with a substantial body of research showing the same effect (see Carter et al., 2016, Baek et al., 2022, and Schomerus et al., 2012 for reviews). Despite the concerning stigma associated with this etiology, researchers have found that providing a clear course of treatment can help to mitigate prognosis pessimism (Lebowitz et al., 2013).

Generally, previous researchers have emphasized the need for taking great care in attributing and discussing a disorder's cause with service users in diagnostic settings (Knettel et al., 2021), as etiology is clearly a huge factor in stigmatizing attitudes. These findings reinforce that message.

Making sense of increases in both blame and recovery optimism towards childhood trauma.

This study validates previous research on how trauma survivors are often met with blame (Kennedy & Prock, 2018) by showing that blame was higher towards the childhood trauma and unknown etiologies compared to the biogenetic etiology. The fact that blame increased alongside recovery optimism is not, in fact, an unexpected finding. A similar combined effect of blame and recovery optimism increasing simultaneously for psychosocial causal attributions compared to biological attributions has been found repeatedly, across multiple studies and reviews (e.g., Baek et al., 2022; Vogelman, 2020).

One way to explain this dichotomy is in the context of individualistic attitudes and a social ecology framework. The fundamental attribution error is common in individualistic societies (Andrews, 2001). It views peoples' disadvantages and advantages as resulting almost exclusively from personal choices rather than recognizing that there are baseline disparities rooted in the overlapping dominant ideologies of patriarchy, white supremacy, and capitalism (Andrews, 2001; McCleary & Figley, 2017). Although childhood trauma survivors are blamed for their trauma, symptoms, or both, childhood trauma can be impairing to the point of lifelong disability for some (Horner, 2015). Seeing recovery as a completely individual process harms survivors further (Ungar, 2013). Furthermore, resilience and recovery are increasingly shown to result not from internal factors but more so from systemic, societal factors. This includes environments people live in, how safe and supported they are, opportunities available and accessible to them, and the extent to which they face additional prejudice and discrimination due to marginalized characteristics (Hozack, 2020; McCleary & Figley, 2017; Ungar, 2013; Vanderley et al., 2020). In fact, the concept of recovery in itself can be thought of as a mark of privilege (Hozack, 2020). Therefore, while recovery optimism is important, it comes with a

caveat warning us not to blame a person for their ongoing suffering when they do not make a quick or full recovery.

Dissociative disorders may be seen as low-status and with low recovery optimism

Previous research shows that people with dissociative presentations following childhood trauma are likely to be seen as faking their symptoms (Dalenberg et al., 2012, Nester et al., 2022), and blamed (Kennedy & Prock, 2018). A recent novel study also showed that dissociative identity disorder is more stigmatized than borderline personality disorder (Gleaves & Reisinger, 2023), one of the most stigmatized disorders known (Masland, 2023). In the baseline vignette, Mia's presentation was dissociative, spacey, and forgetful. Overall, perceived status was very low (see Table 2) and did not meaningfully vary by either of the independent variables. People only perceived Mia as having higher status when they felt they were personally similar to her. Also at baseline, most participants agreed that it would take Mia at 2 or more years to see an improvement in her symptoms (see Figure 1). Despite this, there was also a overall *low* blame and disbelief, which runs contrary to what I expected. Therefore, another possible explanation is that it is not unreasonable to assume that Mia, a college student with few friends, might be perceived as being of overall low social status. Also, the other measures of recovery optimism varied considerably, so the "recovery time" item that I removed from final analyses may not reflect actual recovery optimism.

Further research is needed to validate that these patterns of low baseline perceived status and low recovery optimism were in fact against a person with *dissociation*, and not related to something else about Mia or issues with the measures.

Unexpected and null findings

Low and/or unchanging mean stigma scores. This study's participants overall rated Mia with low and unchanging mean stigma scores: very low blame and disbelief, and middling likability and perceived competence. While recovery optimism varied by both IVs, blame varied by etiology, and status, likability and competence varied by similarity, mean stigma remained overall low and did not vary as much as expected by condition. The most surprising of these null findings was that the childhood trauma condition did not increase disbelief, a finding that should be interpreted with caution given much previous evidence to the contrary (Brown, 2009; Courtois & Gold, 2009; Kennedy & Prock, 2018; Knaak et al., 2017).

One possible explanation for this is the unusual demographic makeup of my participants. This study was incredibly diverse with respect to both sexual and gender identity. LGBTQ+ identity is around 7.1% nationally (Jones, 2022). In comparison, my participants identified at an extremely high rate of 49% LGBQ+ and 8.3% nonbinary/ genderqueer. While tests were not run on any demographic variables in this study, it may have impacted my results. Given the LGBTQ+ community's commonalities with someone with a mental illness (American Psychological Association[2]), they may be more prone to believing and not blaming her. Also, females are more likely to respond favorably to someone with a mental illness (Bradbury, 2020) than men, and this study was 71% female. Also, the highly liberal attitudes of this sample (see Table 1) are a consideration, as liberalism is a reliable predictor of lower stigma (DeLuca et al., 2018). However, sample characteristics cannot fully explain these patterns, as a recent stigma study with similar demographic makeup at the same university showed high variability on stigmatizing attitudes (Delker et al., 2023).

Perhaps a more likely explanation is due to my vignette and/or manipulations. The baseline vignette was long and detailed at 297 words. It painted a clear picture of Mia's struggles

in various settings from a 3ʳᵈ person perspective (not her perspective). Perhaps the vignette was too convincing that Mia's disorder was debilitating, which would have lowered blame and disbelief. Also, the lack of variation in and middling competence may have been because she was *described* as having middling competence by talking about how she was capable of managing hygiene, chores, and homework—she just took longer than others to do them. Replication of the study with a rewritten vignette may produce more variability.

   Generally low stigma towards SCT. Surprisingly, there was overall less stigma towards the SCT label than I expected based on researcher concerns of heavy stigma (Barkley, 2014; Becker & Barkley, 2018; Becker et al., 2022; Saxbe & Barkley, 2014). I did not find that the SCT label was associated with decreased perceived competence, status, or likability as I hypothesized. However, the picture surrounding label-based stigma is not clear-cut. In a systematic review of how diagnostic labeling affects stigma, there was a wide range of effects reported in the literature (O'Connor et al., 2022). Sometimes diagnostic labeling increased, sometimes decreased, and sometimes it did not impact stigma at all. Researchers urged more research into various diagnostic labeling contexts (O'Connor et al., 2022). However, the takeaway is not that SCT is *not* stigmatized, as it is associated with significantly lower recovery optimism, an important consideration for clinicians and researchers alike when considering the name of the disorder. Also, my results overall showed low variability and generally low stigma scores. This could have been extended to the SCT label, so this finding should also be interpreted cautiously.

   No compounding stigma of a childhood trauma survivor with a potentially stigmatized diagnostic label. Given researcher concerns that trauma survivors might feel compounded effects of stigma based on their trauma history and diagnostic labels they are given, I was interested in

whether this study would empirically demonstrate such an effect. I explored potential interactions between the SCT label and the trauma etiology, but there were none.

What I found instead could be interpreted as a combined, rather than compounded, effect of label and etiology-based stigmas: there was increased stigma towards a trauma survivor compared to the other etiologies, and there was increased stigma towards the SCT label compared to the other label conditions. However, there also appeared to be a mitigating effect on label-based recovery pessimism with trauma recognition. Naming trauma as a potential cause of a disorder might *override*, rather than *compound*, low recovery optimism associated with a diagnostic label. That said, there was also added blame for the SCT-labeled individual when they had a trauma history etiology. Previous researchers have discussed this dual impact that trauma recognition can have: increased validation plus the addition of new stigma (Banaj & Pellicano, 2020). Understanding how perceived childhood trauma history interacts with diagnostic labels requires further investigation.

Similarity is the only variable that predicted competence, status, or likability. Previous studies have shown that familiarity is a important covariate for mental illness (Corrigan et al., 2019; Holmes, 1999). SES also, historically, may be a good covariate for mental illness as well (Foster & O'Meally, 2022). However, neither ended up being useful in this context that drew on combinations between stigma of mental illness, childhood trauma, dissociation, and biogenetic etiologies. Instead, a single measure adapted from the brief contact report (Holmes, 1999) of personal similarity to the character in the vignettes was well correlated with the three dependent variables perceived competence, status, and likability. This was consistent with previous research on how familiarity/ similarity improves stigma (Corrigan et al., 2019; Holmes, 1999). Similarity may be a good covariate in future replications and similar studies.

Study strengths and Limitations

This study had considerable strengths. It provided the research community with quantitative, experimental data on stigma towards childhood trauma survivors, which, though growing, is still uncommonly studied. It was also the first known study to directly study stigma towards sluggish cognitive tempo. It validated previous findings regarding stigma towards biogenetic versus psychosocial etiology attributions, but extended these with direct manipulation of a childhood trauma survivor compared to a biogenetic etiology. In what may be a particularly important finding, this study demonstrated what may be a mitigating effect of childhood trauma recognition on one aspect of label-based stigma, recovery optimism, although it led to the additional stigma of higher blame. Finally, this study represents potential baseline stigmatizing patterns towards someone with a dissociative disorder/symptoms, which is also rarely represented in stigma research.

Alongside these strengths, there are also several limitations to this study. I did not find the level of variation I expected to find on most of my variables. This could be due to unique participant demographics, my baseline vignette and/or manipulations, or due to relatively low power in each condition. I also did not experimentally manipulate perceptions of dissociation/ a dissociative disorder, so any speculation about baseline results need to be followed up with future studies.

Directions for future research

Further quantitative research needs to be done on perceptions of people with dissociation. More research is also needed on how diagnostic label and perceived etiology impact actual treatment suggestions, referrals, and outcomes. Also, this study raised questions about whether there are mitigating effects of trauma recognition on label-based stigma for other diagnostic

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labels and for other areas of stigma besides the current context and in the context of substance use, where it has been found as well (Delker et al., 2020[2]). Finally, this study should be replicated with a different participant pool and a re-examination of the vignette.

Conclusion

Self-defined recovery is possible no matter the mental illness diagnosis (O'keeffe et al., 2019) or severity of trauma (Kezelman et al., 2016), but it is higher-order systems and external supports, not individuals, who can have the biggest impact (McCleary & Figley, 2017; Vanderley et al., 2020). Anti-stigma campaigns should focus their attention on combatting causal attribution (etiology) based stigma. Biogenetic etiology-based stigma could be mitigated by increased clinical education about a) taking great care to screen for trauma history in diagnostic contexts, no matter the supposed etiology of a disorder, and b) providing psychoeducation and a clear treatment pathway for people with biogenetically attributed disorders, as previous studies have suggested (Lebowitz et al., 2013). Stigma of childhood trauma survivors might be assuaged by educating the public and providers about the realities of childhood trauma and the varying presentations it can result in. Advocacy on their behalf should identify and target ways to influence trauma-informed service delivery, resources, policies, and laws.

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Tables

Table 1.
Sociodemographic Characteristics of N=372 Participants

Sample characteristics	*n*	%
Gender		
Female	265	71.2%
Male	67	18%
Nonbinary or Genderqueer	31	8.3%
Prefer not to answer/ did not answer	3	.8%
Prefer to self-describe*	6	1.6%
Race		
White	297	79.8%
Multiracial (participants who selected more than one race category; includes 5 people who chose Native Hawaiian or other Pacific Islander+ another race)	31	8.3%
Asian/ Asian American	21	5.6%
Black	6	1.6%
American Indian/ Alaskan Native	1	0.2%
Write-in*	16	4.3%
Are you of Hispanic/x, Latino/a/x, or Spanish origin?	33 (Yes)	8.9%
Sexual Orientation		
Straight/ Heterosexual	174	46.8%
Bisexual	103	27.7%
Queer	34	9.1%
Lesbian	22	5.9%
Gay	9	2.4%
I prefer not to answer	17	4.6%
I prefer to self-describe*	13	3.5%

Note: *see Participant Demographics in manuscript for details.

Table 2.

Initial Descriptive Statistics for Dependent Variables and Covariates

Variable	Mean	SD	Range	Skew	Kurtosis
Recovery Optimism					
RO1 (1 item reversed)	1.34	0.68	1-5	2.08	7.11
RO2 (2 items)	3.76	0.92	1-7	-0.13	3.69
RO3 (2 items)	7.07	1.37	1-9	-0.92	4.99
Competence (6 items)	2.72	0.61	1-5	0.32	3.24
Status (3 items)	3.82	1.01	1-7.67	-0.00	3.27
Likability (4 items)	5.52	1.76	4.75-9	0.30	3.64
Blame (3 items)	2.09	1.05	1-6.67	1.10	4.23
Disbelief (4 items)	1.52	0.70	1-5	1.94	7.65
Familiarity	5.19	2.72	1-9	-0.13	-1.72
Similarity	4.53	2.20	1-9	-0.11	-1.80
Subjective SES	5.3	1.61	2-10	0.13	2.52

Table 3.

Final Dependent Variables and Covariates Following Assumption Tests

Variable	Mean	SD	Range	Skew	Kurtosis
Recovery Optimism					
3 items, Z-scored and scaled	-1.53	0.83	-3.78-1.47	-0.95	5.48
Competence	2.72	0.61	1-5	0.32	3.15
Status	3.82	1.01	1-7.67	-0.00	3.27
Likability	5.52	1.76	4.75-9	0.30	3.64
Blame (log-transformed)	1.07	0.31	0.69-1.79	0.37	2.04
Disbelief (winsorized)	1.51	0.65	1-3.75	1.58	5.52
Similarity (covariate)	4.53	2.20	1-9	-0.11	1.80

Table 4.

Correlations between each covariate with each dependent variable

	Similarity	Familiarity	SES	RecZ1	RecZ2	Competence	Status	Likability	Blame	Disbelief
Similarity	1.00									
Familiarity	0.29***	1.00								
SES	0.10	0.07	1.00							
RecoveryZ1	-0.08	-0.04	-0.09	1.00						
RecoveryZ2	-0.07	-0.03	-0.10	0.95***	1.00					
Competence	0.15**	-0.03	0.00	-0.02	-0.07	1.00				
Status	0.12*	-0.07	-0.06	0.05	0.01	0.29***	1.00			
Likability	0.22***	0.03	-0.01	-0.02	-0.03	0.44***	0.23***	1.00		
Blame	-0.02	0.05	-0.07	0.15**	0.09	-0.01	-0.01	-0.16**	1.00	
Disbelief	-0.02	0.07	0.04	-0.04	-0.11*	-0.05	0.03	-0.20***	0.36***	1.00

Note: *p < .05, ** p<.01, ***p<.001

Table 5.

Hypothesis 1: Main Effect of Label (SCT Label vs. No Label)

	F (1, 232)	Marginal means	SS	p-value	Interpretation
Recovery Optimism	9.64	SCT: -0.15 NL: 0.16	5.64	.002**	Hypothesis supported: *Recovery Optimism is significantly lower for SCT than for No Label*
Competence	2.05	SCT: 2.74 NL: 2.63	0.69	.154	Hypothesis not supported
Status	1.49	SCT: 3.85 NL: 3.69	1.49	.224	Hypothesis not supported
Likability	0.11	SCT: 5.41 NL: 5.46	0.14	.736	Hypothesis not supported

*Note: *$p < .05$, ** $p<.01$, ***$p<.001$; contrasts run based on 2x3 ANCOVA; there were no hypotheses of label main effects for blame or disbelief, and there were no significant main effects of label for them.

Table 6.

Hypothesis 2: Etiology (x2 Contrasts)
    Custom Contrast 1: Biogenetic vs. Trauma+ Unknown
    Custom Contrast 2: Trauma vs. Biogenetic + Unknown

	Contrast Estimates	*SE*	*t* (232)	*p*-value	Marginal means	Interpretation
Recovery Optimism	(1) -0.436	0.11	-4.10	<.001***	BG: -.284 T: .321 U: -.016	Hypothesis supported: *Recovery optimism is significantly lower for the biogenetic than trauma or unknown etiologies; also, recovery optimism is significantly higher for the trauma than the biogenetic or unknown etiologies.*
	(2) 0.471	0.11	4.32	<.001**		
Competence	(1) 0.147	0.08	1.82	0.070	BG: 2.78 T: 2.61 U: 2.66	Hypothesis not supported
	(2) -0.113	0.08	-1.36	0.174		
Blame	(1) -0.116	0.043	-2.71	0.007**	BG: .994 T: 1.080 U: 1.141	Hypothesis partially supported: *The biogenetic etiology results in significantly lower blame than the unknown or trauma etiologies (no significant difference between trauma/unknown)*
	(2) 0.012	0.04	0.27	0.787		
Disbelief	(1) -0.177	0.10	-1.50	0.052	BG: 1.43 T: 1.53 U: 1.68	Hypothesis not supported. *Disbelief is not higher towards the trauma etiology compared to either the biogenetic or unknown etiologies; however, it is significantly lower towards the biogenetic versus the unknown etiology (see post-hoc results).*
	(2) -.155	0.10	-1.50	0.136		

*Note: *p* < .05, ** *p*<.01, ***p*<.001; contrasts run based on 2x3 ANCOVA; no marginal means reported for non-significant contrasts; there were no hypotheses of etiology for status or likability, and there were no significant main effects in etiology for them.

Table 7.

Summary of results per dependent variable

Dependent Variable	Results summary		Hypotheses Supported
Recovery Optimism	-	Lower for the SCT label compared to the Unknown label (no effect of CDHS)*	Hypotheses 1&2
	-	Lowest for biogenetic etiology, highest for trauma etiology*	
	-	Almost all participants expected Mia to take longer than 2 years to recover (see Figure 1).	
Competence	-	Overall middling scores	Neither
	-	Positively correlated with similarity*	
	-	No changes by label or etiology	
Status	-	Overall low scores	N/A
	-	Positively correlated with similarity*	
	-	No changes by label or etiology	
Likability	-	Overall middling scores	N/A
	-	Positively correlated with similarity*	
	-	No changes by label or etiology	
Blame	-	Overall very low scores	Partial support for Hypothesis 1
	-	Higher for trauma or unknown etiologies than for biogenetic etiology* (no difference between trauma and unknown)	
	-	No changes by label	
Disbelief	-	Overall very low scores	Partial support for Hypothesis 1
	-	Lower towards both biogenetic and trauma than unknown*	
	-	No changes by label	

Note: *Statistically significant

Table 8.
*Results of 2x3 ANCOVA Predicting **Recovery Optimism***

2x3 ANCOVA	F	SS	p	Partial η^2
Label	$F(1, 232) = 9.64$	5.64	0.002**	0.04
Etiology	$F(2, 232) = 11.46$	13.40	<.001***	0.09
Similarity	$F(1, 232) = 0.36$	0.21	0.547	0.00
Label*Etiology	$F(2, 232) = 0.10$	0.12	0.903	<.001

Note: All tests control for similarity. *$p < .05$, ** $p<.01$, ***$p<.001$

Table 9.
*Results of 2x3 ANCOVA Predicting **Perceived Competence***

2x3 ANCOVA	F	SS	p	Partial η^2
Label	F (1, 232) = 2.05	0.69	0.154	0.009
Etiology	F (2, 232) = 1.75	1.18	0.176	0.015
Similarity	F (1, 232) = 5.32	1.80	0.022*	0.022
Label*Etiology	F (2, 232) = 0.38	0.26	0.384	0.003

Note: All tests control for similarity. *$p < .05$, ** $p<.01$, ***$p<.001$

Table 10.
*Results of 2x3 ANCOVA Predicting **Perceived Status***

2x3 ANCOVA	F	SS	p	Partial η^2
Label	F (1, 232) = 1.49	1.49	0.224	0.006
Etiology	F (2, 232) = 0.81	1.62	0.447	0.007
Similarity	F (1, 232) = 5.70	5.72	0.018*	0.024
Label*Etiology	F (2, 232) = 0.17	0.33	0.166	0.001

Note: All tests control for similarity. *$p < .05$, ** $p<.01$, ***$p<.001$

Table 11.
*Results of 2x3 ANCOVA Predicting **Likability***

2x3 ANCOVA	F	SS	p	Partial η^2
Label	F (1, 232) = 0.11	1.40	0.736	<.001
Etiology	F (2, 232) = 0.79	0.97	0.455	0.007
Similarity	F (1, 232) = 10.29	12.67	0.002*	0.042
Label*Etiology	F (2, 232) = 0.11	0.13	0.900	<.001

Note: All tests control for similarity. *$p < .05$, ** $p<.01$, ***$p<.001$

Table 12.

*Results of 2x3 ANCOVA Predicting **Blame***

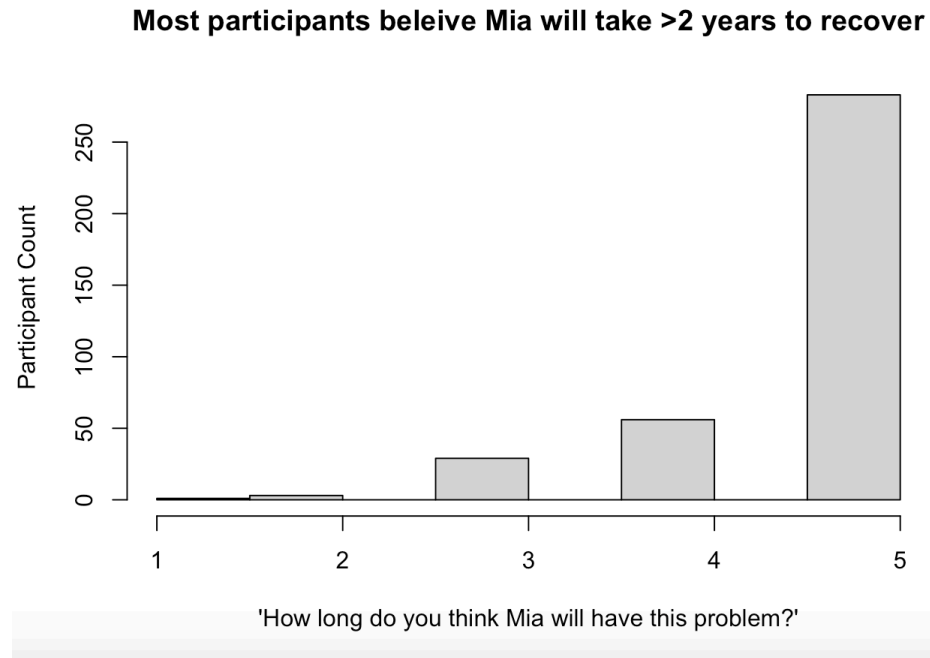| 2x3 ANCOVA	F	SS	p	Partial η^2
Label	$F(1, 232) = 1.79$	1.69	0.184	0.08
Etiology	$F(2, 232) = 4.77$	0.90	0.009**	0.04
Similarity	$F(1, 232) = 0.13$	0.01	0.128	<.001
Label*Etiology	$F(2, 232) = 0.23$	0.04	0.793	0.00

Note: All tests control for similarity. *$p < .05$, ** $p<.01$, ***$p<.001$

Table 13.

*Results of 2x3 ANCOVA Predicting **Disbelief***

2x3 ANCOVA	F	SS	p	Partial η^2
Label	$F(1, 232) = 0.56$	0.24	0.456	0.002
Etiology	$F(2, 232) = 3.27$	2.78	0.040*	0.27
Similarity	$F(1, 232) = 0.27$	0.11	0.606	0.001
Label*Etiology	$F(2, 232) = 0.00$	0.00	0.996	<.001

*Note*: All tests control for similarity. *$p < .05$, ** $p<.01$, ***$p<.001$

Figure 1.
Histogram showing that recovery optimism item 1 is effectively a constant.

Most participants beleive Mia will take >2 years to recover

'How long do you think Mia will have this problem?'

Note: By answering "5", participants indicated that they expected Mia would have this problem for >2 years.

Figure 2.

*Correlation matrix heat map between covariates and dependent variables.*
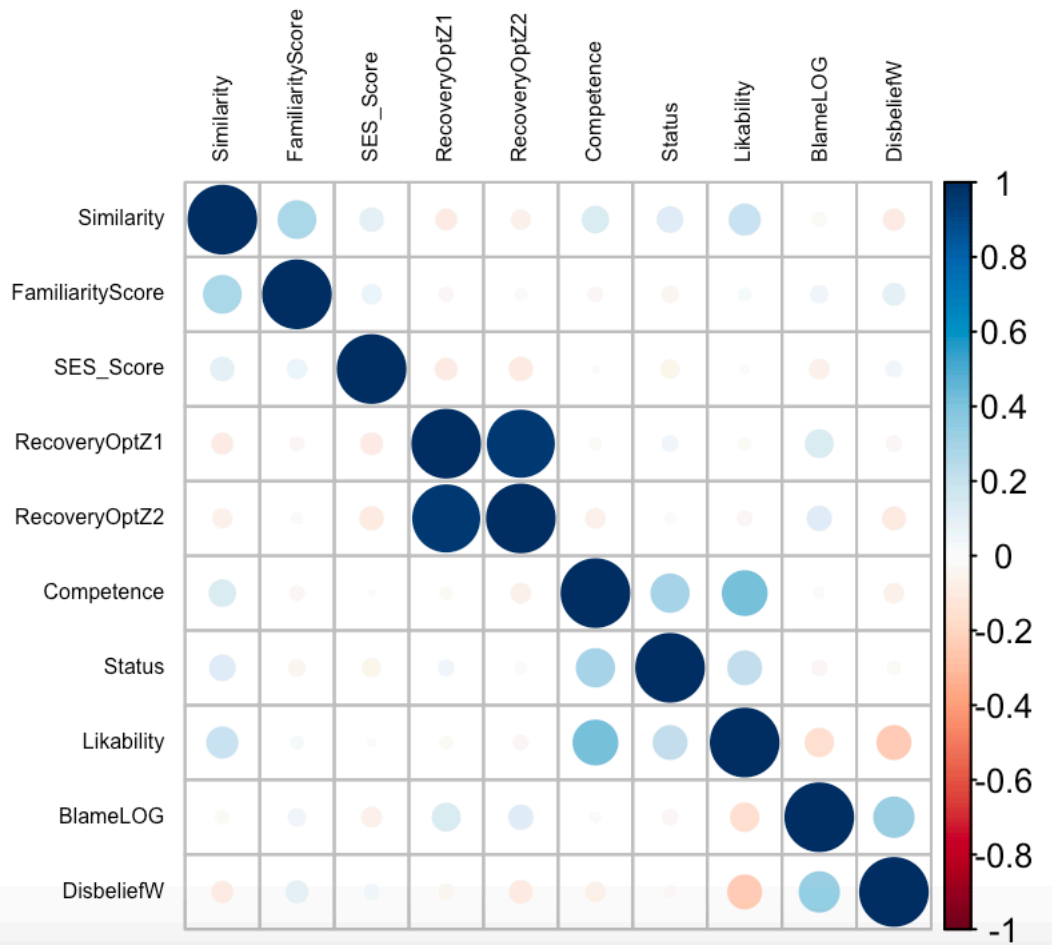
Note: Blue represents positive correlations; red/orange represents negative correlations. The strength of the color and size of the circle represents correlation strength. This figure shows that Similarity and Familiarity are strongly correlated, and that Similarity is more strongly correlated with the dependent variables than the Familiarity variable is.

Figure 3.

Detailed linear relationships and correlations between covariates and dependent variables.
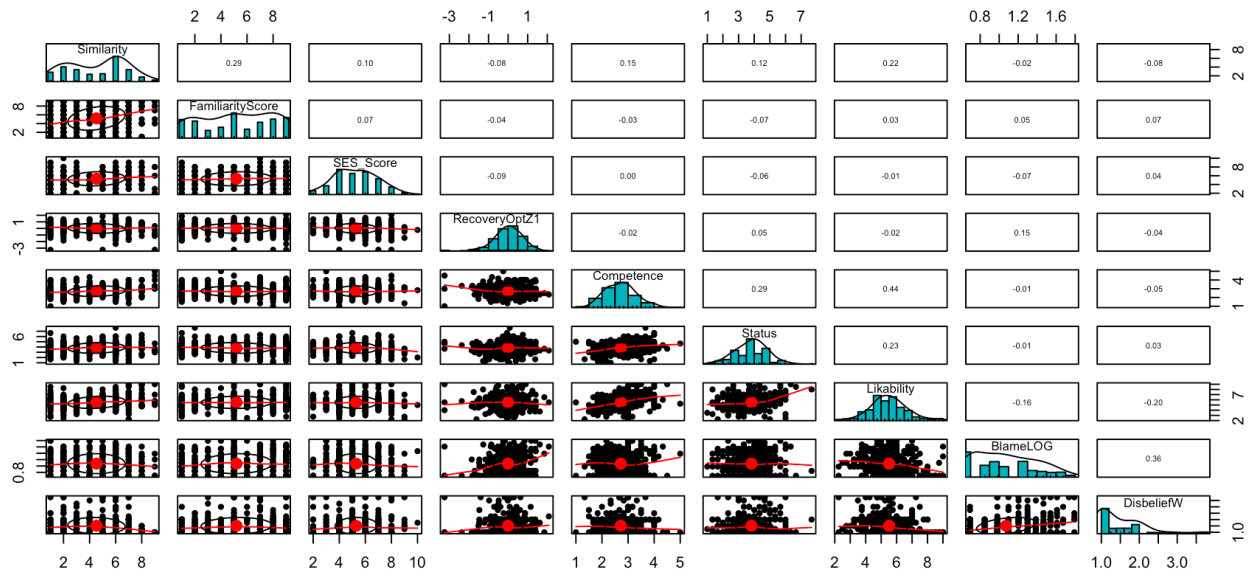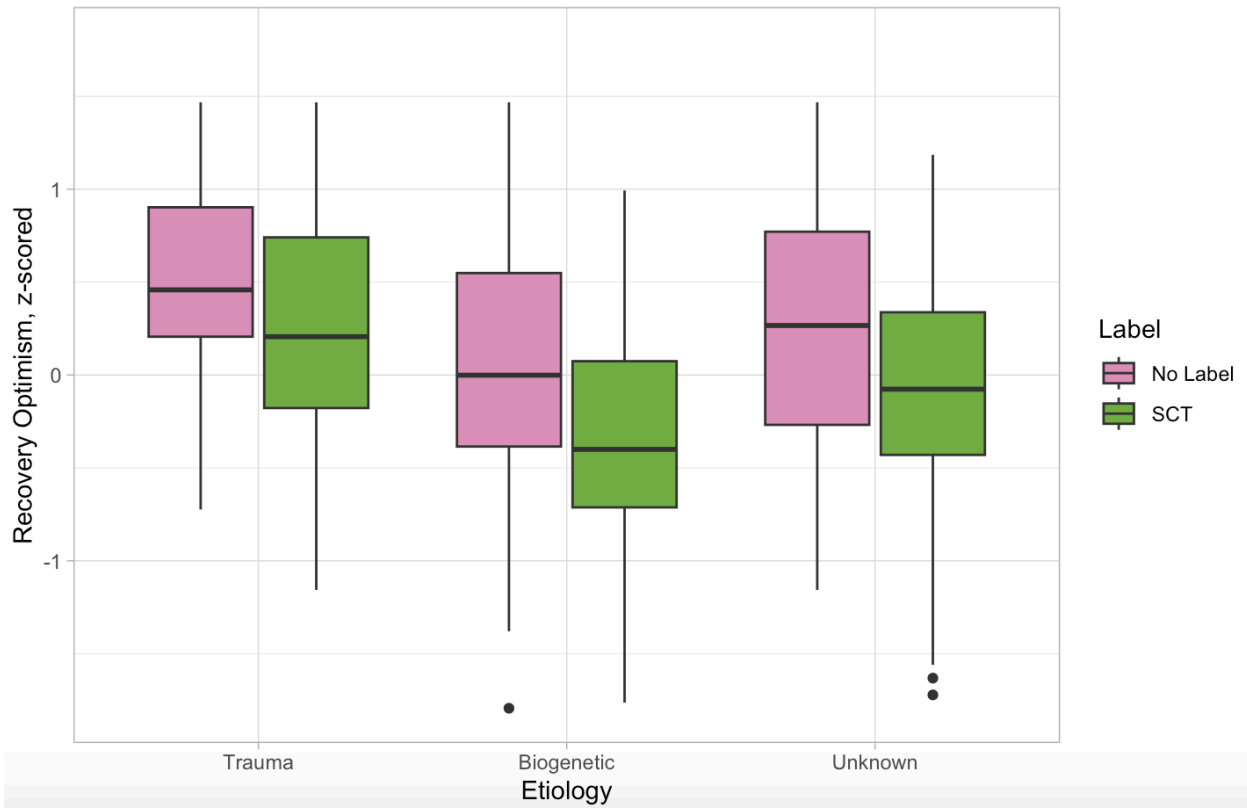
Figure 4.

Recovery optimism is significantly higher for the trauma etiology than the biogenetic or unknown etiologies, regardless of label.
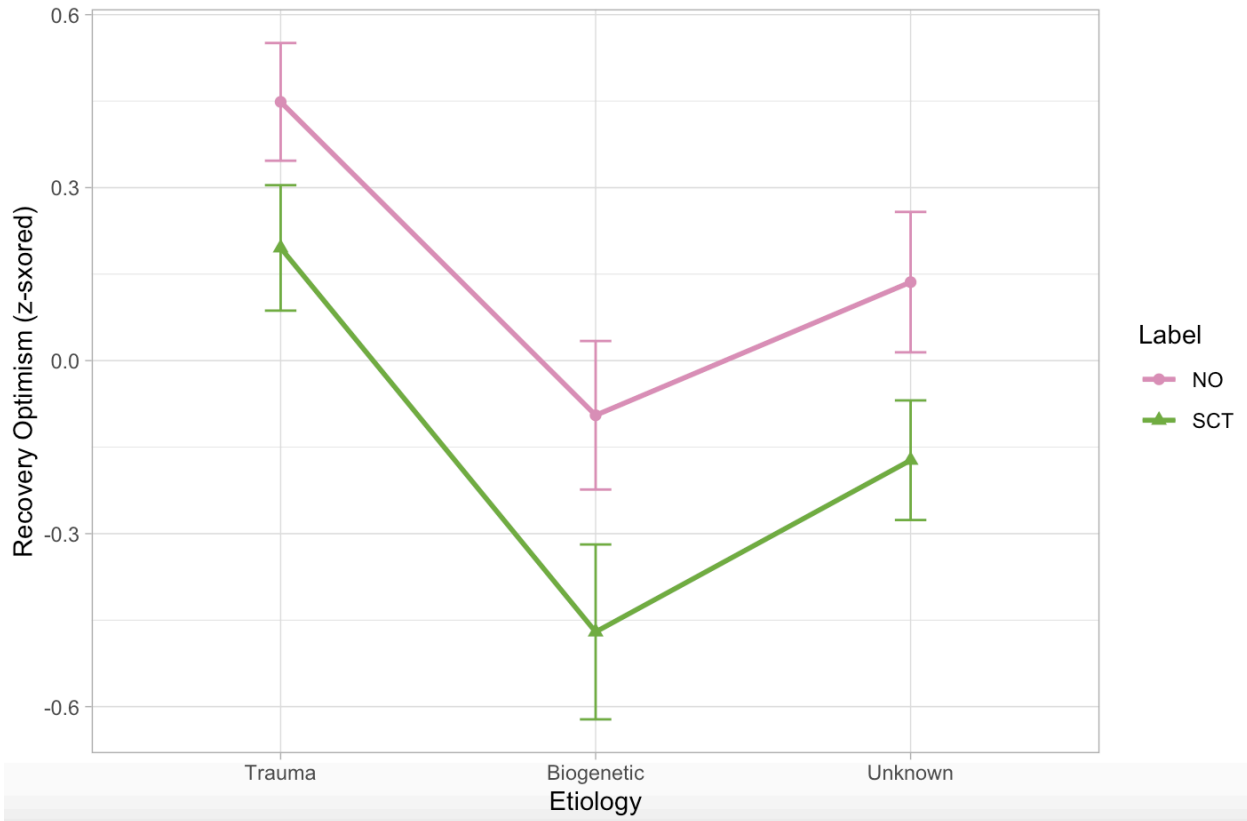
Note: Recovery optimism is a z-scored variable, so 0 is a scaled mean. Positive and negative values around 0 do not correspond to positive and negative recovery optimism.

Figure 5.

Recovery optimism is significantly lower towards the SCT label than it is for no label regardless of etiology; however, it is still highest in the trauma etiology condition.
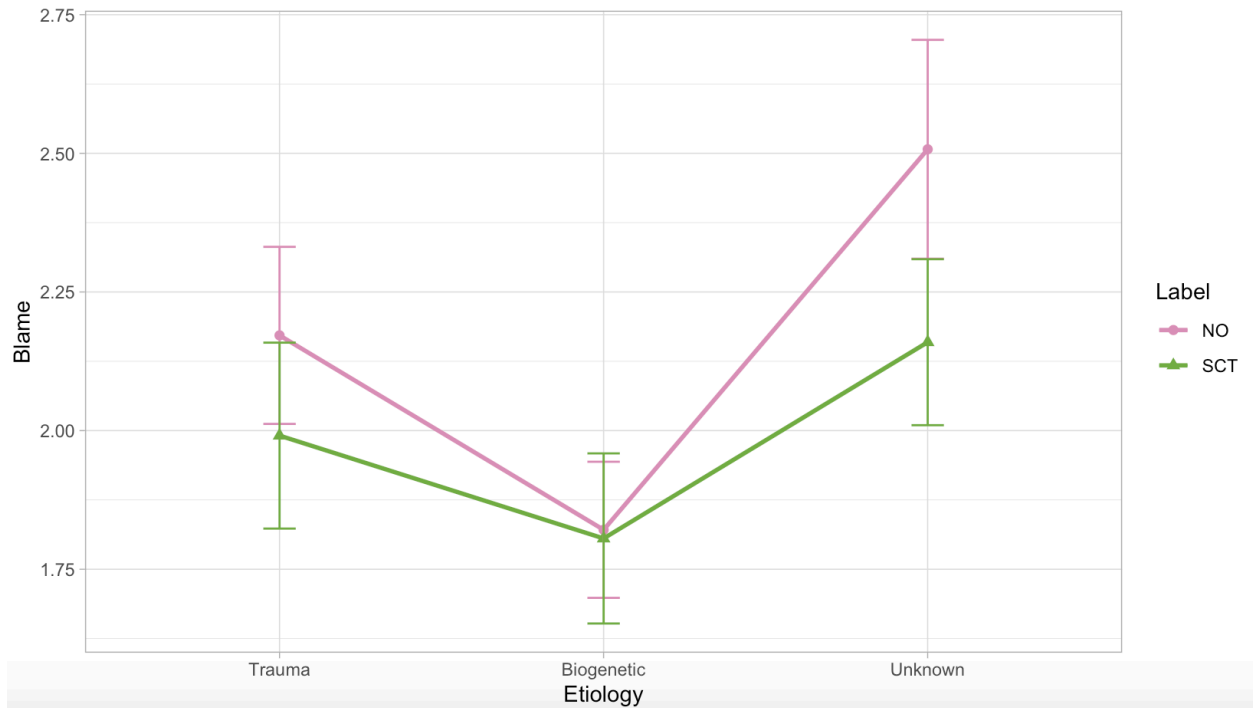

Note: Recovery optimism is a z-scored variable, so 0 is a scaled mean. Positive and negative values around 0 do not correspond to positive and negative recovery optimism.
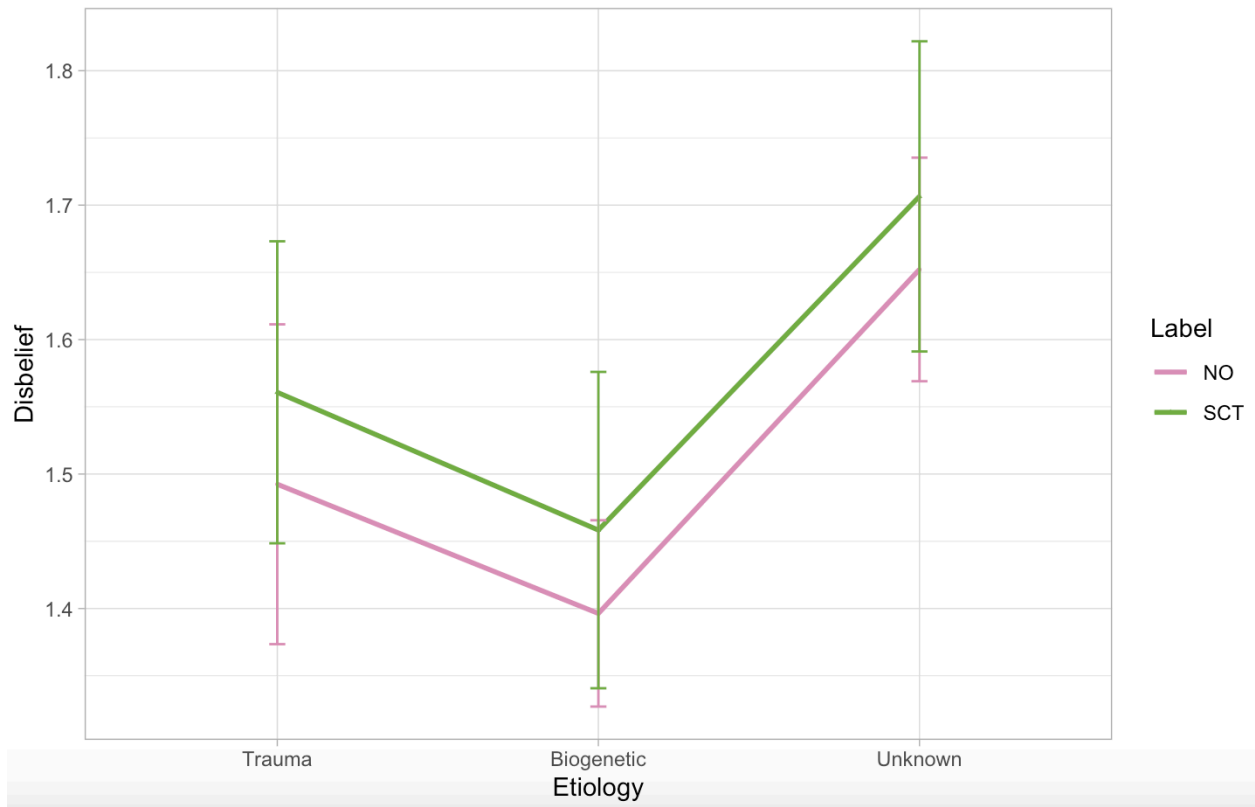
Figure 6.

Blame is significantly lower towards the biogenetic compared to the trauma and unknown etiologies.

Note: This is an untransformed version of the blame variable.

Figure 7.
Disbelief is significantly higher towards the unknown than the biogenetic or trauma conditions.

Appendix

Materials

Baseline vignette

I got a new off-campus roommate this year, this girl named Mia. When I first met Mia, she seemed pretty withdrawn and would hang out in her room a lot saying she was tired. Because she never wanted to go out, I either hung out with her at home or in the class we had together. As I got to know her, I noticed she was spacey and zoned out a lot of the time. She would sometimes sit around staring off into space, I'd have to repeat her name to get her attention, and she'd be like, "sorry, did you say something?" She was slow to respond when someone asked her a question, like she was off in another world or confused by what they said, and she would forget what she was about to say a lot, too. I think it was part of why she didn't have many friends and hardly ever spoke up in class. Mia was really slow-moving. I don't think I ever met someone who took that long to get ready for the day, I mean she took forever in the shower, and she spent way too long on homework. She was slow to do chores or finish assignments. She was really forgetful. She did that thing where you walk into a room, forget what you came in there for, and then leave, and she was always forgetting what the professor assigned because she forgot to write it down. She hardly ever seemed to be paying attention in class, she would stare off into space when the professor was talking. I asked her what she was thinking about once and she said she did a lot of daydreaming, sometimes because she wanted to, but sometimes she didn't have control over it.

Etiology and Label Manipulations

Manipulation 1:

(Label: SCT) Mia mentioned at some point that she was seeing a therapist for something she called "sluggish cognitive tempo."

(Etiology: Childhood trauma) Getting to know her more, turns out she had a lot of childhood trauma.

Manipulation 2:

(Label: SCT) Mia mentioned at some point that she was seeing a therapist for something she called "sluggish cognitive tempo."

(Etiology: Biogenetic) Getting to know her more, turns out she had some kind of genetic brain disorder.

Manipulation 3:

(Label: SCT) Mia mentioned at some point that she was seeing a therapist for something she called "sluggish cognitive tempo."

(Etiology: Unknown) Getting to know her more, turns out no one really knows what her disorder is caused by.

Manipulation 4:

(Label: No label) Mia mentioned at some point that she was seeing a therapist.

(Etiology: Childhood trauma) Getting to know her more, turns out she had a lot of childhood trauma.

Manipulation 5:

(Label: No label) Mia mentioned at some point that she was seeing a therapist.

(Etiology: Biogenetic) Getting to know her more, turns out she had some kind of genetic brain disorder.

Manipulation 6:

(Label: No label) Mia mentioned at some point that she was seeing a therapist.

(Etiology: Unknown) Getting to know her more, turns out no one really knows what her disorder is caused by.

Manipulation 7:

(Label: Cognitive Disengagement Hypoactivity Syndrome) Mia mentioned at some point that she was seeing a therapist for something she called "cognitive disengagement hypoactivity syndrome."

(Etiology: Childhood Trauma) Getting to know her more, turns out she had a lot of childhood trauma.

Manipulation 8:

(Label: Cognitive Disengagement Hypoactivity Syndrome) Mia mentioned at some point that she was seeing a therapist for something she called "cognitive disengagement hypoactivity syndrome."

(Etiology: Childhood Trauma) Getting to know her more, turns out she had some kind of genetic brain disorder.

Manipulation 9:

(Label: Cognitive Disengagement Hypoactivity Syndrome) Mia mentioned at some point that she was seeing a therapist for something she called "cognitive disengagement hypoactivity syndrome."

(Etiology: Childhood Trauma) Getting to know her more, turns out no one really knows what her disorder is caused by.

Manipulation Check (following each manipulation):

1. In the story, what was the name of Mia's condition?

a) Sluggish cognitive tempo

b) Cognitive disengagement hypoactivity syndrome

c) It was never named

2. In the story, what caused Mia's condition?

a) Childhood trauma

b) Genetic: it was a "genetic brain disorder"

c) The cause was unknown

Measures

Recovery Optimism

Measured with two combined scales.

1. Cheng (2014)'s "Essential and Enduring" scale: 1. "How long do you think she will have SCT/this problem?" Range of 1-3 months to over 2 years. 2 & 3. "[Her] condition is treatable." "It would be easy to treat [her] condition" 6-point Likert scales (1= *definitely not*, 6= *definitely yes*).

2. Two "treatment prognosis" items by Yeh et al. (2017). The two items include "I believe that [she] would improve if given treatment and support." and "I believe that [she] can eventually recover." Items are measured on a 9-point Likert scale (1= *do not believe at all,* 9= *believe very strongly*).

Competence

Items will be measured on a 7-point Likert scale (i.e., 1=*Strongly disagree*, 7=*Strongly agree*).

Instructions: Please indicate the extent to which you agree with the following statements.

1. [She] is generally competent.

2. [She] is intelligent.

3. [She] takes good care of her health (e.g., cooking, eating a balanced diet, managing personal hygiene, going to the doctor or dentist).

4. [She] is successful at completing day-to-day tasks (e.g., paying bills, cleaning, doing laundry).

5. [She] is organized (e.g., shows up on time, turns things in on time).

6. [She] performs well in school and/or at work.

Perceived status and likability

Instructions: Please use the slider to indicate how you feel about [the protagonist].

I feel [the protagonist] is:

      (1) a follower   (9) a leader

      (1) low status   (9) high status

      (1) not respected   (9) respected

      (1) inconsiderate   (9) considerate

      (1) uncooperative   (9) cooperative

      (1) unlikable   (9) likeable

      (1) unpleasant   (9) pleasant

Blame (from the AQ-27, Corrigan, 2012).

Instructions: Answer each of the following questions about [her]. Indicate the number of the best answer to each question.

1. I would think that it was her own fault that she is in the present condition (1 = Not at all, 9=Absolutely so)

2. [She] is in control of her present condition (1=Not at all under personal control, 9=Completely under personal control)

3. [She] is responsible for her present condition (1=Not at all responsible, 9=Completely responsible).

Disbelief

Items will be scored on a 7-point Likert scale (1= *Strongly disagree*; 7=*Strongly agree*).

Instructions: please indicate the extent to which you agree with each statement.

1. She is faking her condition.

2. She is exaggerating her symptoms.

3. She is abusing the system and taking advantage of support by acting like that.

4. Her condition is just an excuse to get out of doing things.

Familiarity

Research participants will be instructed to check all situations on the list that they have experienced in their life- time. The index for contact is the rank score of the most intimate situation indicated by the participant. For example, a person who checks "A friend of the family is similar to [her]" (rank order score = 7) and "I have observed in passing people who are similar to [her]" (rank order score = 2) would receive a score of 7 because " A friend of the family is similar to [her]" is the most intimate of checked situations. These rankings follow the rankings created by Holmes et al. (1999). However, the scale is 3 items shorter, and some items have been reworded to be more ecologically valid to the hypothetical college roommate vignettes.

Instructions: Please read each of the following statements carefully. After you have read all the statements below, place a check by the statements that best depict your exposure to persons who are similar to [the protagonist].

1_(value=3)_I have learned about people who are similar to [her] in my degree program.

2_(6)_My job involves helping people who are similar to [her].

3_(2)_I have observed in passing people who are similar to [her].

4_(4)_I have observed someone similar to [her] on a frequent basis.

5_(5)_I have attended class or worked side by side with someone similar to [her] at my job.

6_(1)_I have never observed a person who is similar to [her].

7_(7)_A friend of the family is similar to [her].

8_(8)_I have a relative who is similar to [her].

9_(9)_I live with someone who is similar to [her].

The final familiarity item, "I am smilar to [her]" was removed from the brief contact report and turned into a continuous measure: "*Please indicate the extent to which* you *are similar to her*" (1=Not at all similar, 9=Completely similar).

Demographics

1. How old are you? _____

2. What is your race? (Choose all that apply).

    a. Black or African American

    b. White

    c. American Indian or Alaska Native

    d. Asian

    e. Southwest Asian or North African (SWANA)

    f. Native Hawaiian or Other Pacific Islander

3. Are you of Hispanic/x, Latino/a/x, or Spanish Origin?

    a. Yes

    b. No

4. How do you currently describe your gender identity?

- Woman

- Man

- Nonbinary or Genderqueer

- I prefer to self-describe: _____

- I prefer not to answer

5. Do you consider yourself to be:

- Straight or Heterosexual

- Lesbian

- Gay

- Bisexual

- Pansexual

- Asexual

- Queer

- I prefer to self-describe: ___

- I prefer not to answer

Sociopolitical questions

Political attitudes. How would you describe your political attitudes? [1=extremely liberal, 3=somewhat liberal, 5=neither liberal/conservative, 7=somewhat conservative, 9=extremely conservative] (Dawtry, Sutton, & Sibley, 2015).

MacArthur Scale of Subjective Social Status - Adult Version (Giatti et al., 2012). Scoring: Each rung of the ladder corresponds with numbers from 1 through 10. If a participant marks an "X" on the bottom rung, their response is scored as *1*. If they mark an "X" on the middle rung, their response is scored as *5*. If they mark an "X" on the top rung, their response is scored as *10*.

Instructions: Think of this ladder as representing where people stand in the United States. At the top of the ladder are the people who are the best off – those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off – those who have the least money, least education, the least respected jobs, or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please indicate on the rung where you think you stand at this time in your life relative to other people in the United States.