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STORYTELLING TO PROMOTE MENTAL HEALTH: A CONCEPTUAL
ANALYSIS AND APPLICATION WITH ACCEPTANCE
AND COMMITMENT THERAPY
FOR DEPRESSION

by

Carter H. Davis

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

Michael E. Levin, Ph.D.
Major Professor

Michael P. Twohig, Ph.D.
Committee Member

JoAnn T. Tschanz
Committee Member

Tyler Levefor, Ph.D.
Committee Member

Karen F. Muñoz, Ph.D.
Committee Member

D. Richard Cutler, Ph.D.
Vice Provost of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2022

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ABSTRACT

Storytelling to promote mental health: A conceptual analysis and application with
acceptance and commitment therapy for depression

by

Carter H. Davis

Utah State University, 2022

Major Professor: Michael E. Levin, Ph.D.

Department: Psychology

Storytelling has many potential applications for behavioral health interventions. While narrative concepts have been drawn upon in other schools of psychotherapy, they have largely gone underexamined in cognitive behavioral therapies (CBTs). Acceptance and commitment therapy (ACT) is a modern form of CBT that may integrate especially well with storytelling. The following dissertation presents a conceptual analysis of narrative drawing from the theoretical roots of ACT, along with a clinical trial applying these principles to a specific intervention for primary care patients with depression.

ACT exists within a branch of psychology known as contextual behavioral science, which is based on the understanding that discreet acts (including thinking, feeling, and telling stories) are inseparable from their historical and situational

circumstances. Relational frame theory (RFT) describes how language, such as that which constitutes storytelling, derives its psychological impact through the relating of stimuli. In the first paper presented herein, unique features of stories, such as character, setting, and plot, are analyzed through principles of RFT including functional coherence, perspective taking, and transformation of stimulus function. Understanding stories through this contextual lens creates opportunities for more targeted and impactful uses of narrative within interventions such as ACT. Several of these clinical strategies are described.

Narrative approaches may be especially useful in reaching patient populations which are difficult to engage using more traditional methods. For instance, many individuals seek treatment for depression from a primary care provider who often prescribes antidepressant medication but not more intensive psychological treatment. Therefore, the second paper tested a narrative-based ACT treatment to address this gap in care. *LifeStories*, a video storytelling-based intervention, was designed to teach ACT coping skills by viewing stories from real patients with lived experiences of depression. We found that, compared to patients only using antidepressants, adjunctive *LifeStories* led to greater increases in mental health-related quality of life and also promoted patient interest in seeking further behavioral healthcare. However, *LifeStories* did not lead to differential improvements in depression severity nor psychological inflexibility compared to the antidepressant group. Our results indicated that a brief storytelling-based intervention can impact quality of life for antidepressant users as well as encourage them to seek out longer term behavioral health supports.

PUBLIC ABSTRACT

Storytelling to promote mental health: A conceptual analysis and application with acceptance and commitment therapy for depression

Carter H. Davis

Mental health treatments can be delivered in many ways. One approach is to use storytelling to communicate healthy practices. While societies across the world have engaged in storytelling for thousands of years, these practices have been used less in the mental health field. The aim of this project was to study the overlap between the areas of mental health and storytelling. We also tested how a storytelling-based mental health treatment could help solve a particular clinical problem. In this case, the problem of people who receive inadequate help for managing depression through medication alone.

We examined one particular mental health intervention, called Acceptance and Commitment Therapy (ACT), and its overlap with basic principles of storytelling. The central goal of ACT is to live more fully according to one's personal values even in the presence of emotional suffering. We explain technically how reading, hearing, or seeing engaging stories could support this goal. We also describe ways that therapists who use ACT with their patients can draw from these storytelling-based principles.

The second part of this project was a specific test of what happens when ACT and storytelling are combined in a mental health treatment. *LifeStories* is an online mental health program that teaches ACT-based skills for managing depression through the use of personal narrative videos of other patients who have developed effective ways of coping.

We tested *LifeStories* with a group of primary care patients who were prescribed antidepressant medication but were not receiving other mental health support. Half of these patients used the *LifeStories* program for four weeks in addition to taking their medication, while the other half only took medication.

We found that patients who used *LifeStories* had greater increases in quality of life compared to those only taking medication. These patients also became more interested in continuing mental health treatment after the program ended. In both groups of patients, depression severity decreased at the same rate, as did psychological inflexibility. Overall, our study showed that a brief storytelling intervention can improve quality of life and promote interest in seeking further mental health support for primary care patients.

ACKNOWLEDGMENTS

This entire project is about stories. I could not have imagined that my own life story would become so intertwined with the stories in this project and how much that would give to me. Many people helped make this work so meaningful and worthwhile over the years. I am especially grateful for those who have made my life in Utah so wonderful and rich for the past four years: Kaitlyn, Mara, Hanna, Jan, Jason. I also owe much gratitude to my academic mentors. Mike Levin and Mike Twohig for being kind and generous advisors who always placed a great deal of trust in me. I cannot imagine a better research lab than the ACT Research Group at USU. The everyday conversations I've had with other labbies significantly shaped the work I do. Lastly, thank you to Brandon Gaudiano and Lisa Uebelacker for planting the initial seeds for this project and allowing me the opportunity to help it grow. Several years ago, they were willing to take on an art student and introduced me to this field that has given me so much professionally and personally.

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CHAPTER I

GENERAL INTRODUCTION

Storytelling and Psychological Science

The act of storytelling predates any modern human science by millennia. Storytelling practices are at least 44,000 years old, as evidenced by the earliest narrative art yet discovered: a cave painting depicting a hunting scene on the island of Sulawesi in modern-day Indonesia (George, 2019). As human minds evolved, so were we telling stories, whether to entertain, communicate, cooperate, or transmit cultural norms (Sugiyama, 2001). That is to say, humans are “hard wired” to understand stories, and this tendency to view the world through a narrative lens has been drawn upon at various points in the history of clinical psychology (Meier, 2012).

Narrative therapy, developed in the 1980s by Michael White and David Epston (White et al., 1990), proposed that people make sense of life events and emotional experiences by consolidating them into “dominant plots” that serve as overarching worldviews. When these “plots” become dysfunctional, a narrative therapist can help a client to “rewrite” their stories, such as by reframing events or promoting greater client autonomy. Such narrative frameworks of mental health have largely been ignored, however, in the development of modern cognitive behavioral therapies (CBTs).

This omission of narrative concepts may be due to an initial emphasis in CBTs on overt behavior and discrete internal events (i.e., specific cognitions or emotions; Hayes et al., 2019). As storytelling involves ways of speaking, listening, and understanding that are seemingly more abstract, they have undergone less examination by psychologists operating from a CBT framework. Interestingly, psychologists observed that people

ascribe narrative qualities to even very simplistic stimuli decades prior to the emergence of CBTs (Heider & Simmel, 1944). This important finding was, arguably, not well integrated into applied clinical interventions in the years that followed. Given the universality of storytelling across global cultures, and its unique capacity to engage our attention, a potential missed opportunity exists in not bringing narrative methods to bear on CBTs, which contain many valuable therapeutic techniques but stand to engage larger swaths of people.

The lack of integration of narrative approaches in CBTs is perhaps reflective of broader trends in mental healthcare. CBTs evolved in tandem with a trend of increasing emphasis on biomedical or syndromal classifications of mental illnesses, reflecting the belief that psychological dysfunction is a result of discrete, latent abnormalities which can be targeted like a faulty part in a machine (Deacon, 2013). This viewpoint led to the development of CBTs for specific clinical diagnoses involving a myriad of discrete treatment components. Although often effective clinically, many of these protocols lacked a theoretical coherence that would allow them to be applied to a greater diversity of individuals and symptom presentations (Hayes et al., 2013).

An overreliance on *technique* instead of *process* in CBTs can lead to a number of issues in delivering effective treatment at scale, such as challenges in adapting methods to diverse cultural groups (Hayes et al., 2019). Conversely, while older narrative therapy frameworks may have possessed theoretical coherence, such as a grounding in postmodernist (Monk, 1997) or social constructivist (Meier, 2012) philosophies, they did not achieve the high level of research and dissemination as CBTs. This was potentially due to a lack of specific manualized techniques and, relatedly, a lack of correspondence

between their theories of change and the dominant biomedical model. While in recent years the utility of the biomedical model has been called into question (Deacon, 2013), it continues to exert a strong influence on public perceptions of mental health. For instance, although there is evidence for a significant preference of psychological treatments like CBTs over pharmacological ones, rates of psychiatric medication use have grown substantially in recent years (McHugh, 2013). This would suggest that although patients may prefer psychological interventions, there are significant shortfalls in access to therapy, satisfaction with available therapy options, or both. Therefore, innovations in how CBTs are designed and delivered are warranted. A greater integration of narrative approaches into CBTs could be a meaningful step in this direction.

Acceptance and Commitment Therapy and its Roots

Acceptance and Commitment Therapy (ACT; Hayes et al., 2011) is a modern CBT with an increasing evidence base for a wide variety of mental health issues (Gloster et al., 2020). ACT is unique among CBTs in that it rests upon a rich theoretical foundation grounded in behavior analysis, while also providing a clear set of intervention methods which can largely be implemented without a full understanding of these philosophical roots (Hayes et al., 2013). However, since the basic science underlying ACT can potentially offer insights into any human behavior, including storytelling, understanding these roots may provide opportunities to deepen and expand existing clinical practices and dissemination methods.

ACT exists within the broader worldview of functional contextualism, which posits that any one behavior (including an “internal” behavior such as a thought, emotion,

or memory) cannot be detached from the historical and situational context that it occurs in (Hughes & Barnes-Holmes, 2016). In other words, behaviors are not unitarily true, false, good, or bad, but must be considered as a part of the broader whole that surrounds them. Since functional contextualism is not occupied by the search for the ontological “truth” of an event or phenomenon, then, it requires an alternative metric of validity. This is referred to as the pragmatic truth criterion, in which the success of any analysis is judged by its ability to simultaneously predict and influence as wide a range of phenomenon as possible (Hayes et al, 2013).

The application of functional contextualism to human psychology and mental health, known as contextual behavioral science (CBS), applies this pragmatic truth criterion to the practices of psychological diagnosis, measurement, and intervention. Given that the activities which typically constitute these clinical practices, such as talking, building a relationship, reading, writing, and so on, all occur in contexts both within and (more often) outside the therapy room, CBS tends to be more interested in the wholeness, complexity, and contradictions of human behavior than are other cognitive behavioral traditions (Hayes & Hofmann, 2021). For this reason, CBS is well positioned to examine the clinical utility of storytelling as a unique behavioral process.

Psychological intervention from a CBS perspective is focused on directly manipulating environmental variables that influence mental health as opposed to seeking to alter cognitions or other internal experiences themselves. That is, CBS aims to affect psychological functioning from the “outside in” rather than “inside out.” The processes through which ACT attempts to do this were derived from relational frame theory (RFT; Barnes-Holmes et al., 2001), a contextual behavioral account of human language and

cognition which offers insight into how psychological suffering emerges. RFT puts forth the notion that the uniqueness of human psychology, and its tendency to go awry, is rooted in the ability to relate arbitrary stimuli and subsequently derive additional relations with hardly any effort. An “arbitrary” relation means one that is typically based on spoken or unspoken sociocultural norms as opposed to the actual, physical properties of a stimulus (Hughes & Barnes-Holmes, 2016). For instance, a sensation of discomfort in the stomach might be interpreted as “dread,” “panic,” or simply “bad,” whereas if one attends solely to physiological sensations, this same event could simply be considered an uncomfortable yet transitory sensation. A more detailed account of RFT, and its relevance to storytelling, is presented in the second chapter. While the implications of RFT on psychological health are vast, the way through which ACT aims to intervene on them can be described in a few key processes.

Psychological Flexibility as a Central Target

The overarching goal of ACT is to increase psychological flexibility, or the quality of mindfully noticing mental experiences in a non-judgmental way while choosing to engage in personally meaningful life activities (Hayes et al., 2011). From the perspective of RFT, psychological flexibility is a challenge due to a history of learning to relate arbitrary stimuli. This history means that psychic pain can be cued by nearly anything in one’s environment, even in the absence of a tangible threat. Efforts to alter or eliminate these unpleasant cognitions and emotions, even when doing so generates further suffering, is called experiential avoidance. Since our minds, our histories, and our abilities to arbitrarily relate follow us wherever we go, experiential avoidance is not only

an internal, psychological experience but also manifests behaviorally in important ways, such as in our participation (or lack thereof) in meaningful life activities. Psychological flexibility involves shifting the focus from the content of internal experiences (and, in turn, efforts to avoid this content) to the context or behaviors that surround them. This may involve, for instance, helping a client view depressive or hopeless cognitions as an experience that comes and goes, rather than a “true” aspect of themselves, while clarifying activities that provide them with a sense of purpose or fulfillment in the moment (Yasinski et al., 2019).

Psychological flexibility is considered a unitary goal in ACT in that many different techniques can serve to foster it. However, a set of six core components have been identified as unique processes, while all contributing to general psychological flexibility (Hayes et al., 2006). These consist of acceptance and mindfulness-based skills as well as commitment and behavior change strategies. “Acceptance” does not mean tolerating or “being okay” with difficult feelings, but rather practicing a non-judgmental and non-reactive stance towards the breadth of emotional signals one may experience. Concurrent with this stance is cognitive defusion, which is the practice of labeling or “calling out” thoughts and feelings as such, as opposed to taking them literally or “fusing” with their content. This deliteralization can be contacted through activities such as saying “I’m having the thought that...” preceding a difficult or avoided cognition, or by repeating thoughts aloud until they lose their emotional heft. Mindfulness is taught as an additional core skill in ACT, since viewing internal experiences in this accepting and defused way necessitates a conscious awareness of them in the first place. Practices such as meditation, mindful eating, and movement practices can all serve to bring intentional

awareness to the present moment. Over time, utilizing these acceptance and mindfulness skills ideally fosters a sense of self that is conscious and yet distinct from psychological content, referred to as self-as-context.

As a behavioral intervention, ACT also engages processes that serve to increase behavioral variability into clients' lives as a counterweight to experiential avoidance. An important component of ACT is the exploration of personal values, or qualities of behavior which give meaning and purpose to life. From a clinical perspective, conditions such as depression and anxiety may impede one's ability to engage with values due to a bias in attending to certain stimuli (e.g., social rejection, feared outcomes) while neglecting others (e.g., activities that provide a sense of wholeness). Values are brought into treatment through both structured activities, such as assessing participation in various domains of life, as well as experiential exercises like inviting clients to imagine what one's obituary would say. In addition to clarifying personal values, ACT encourages clients to translate them into actionable goals. The process of committed action involves freely choosing new behavioral patterns which reflect one's values. Since engaging in any new habit is likely to cause feelings of discomfort or mental resistance, mastery is achieved gradually through small, tangible behavioral commitments.

While storytelling could potentially be useful in supporting any of these change processes, such as using an extended metaphor like "Passengers on the Bus" to demonstrate accepting unwanted thoughts while pursuing one's values, there is currently a lack of integration of narrative methods with underlying theories such as RFT, experiential avoidance, and psychological flexibility. Achieving this greater theoretical clarity could help tailor clinical strategies "from the bottom up" using narrative methods,

while potentially reaching diverse audiences who would be less engaged in traditional formats of ACT. Along with the ways in which storytelling can align with the theoretical roots of ACT, it is worth considering the utility that delivering ACT through narrative means could bring to specific clinical populations. In particular, populations that lack equitable access to standard behavioral interventions may benefit from engaging, narrative-based treatments.

Combining Storytelling and ACT to Treat Depression

One clinical area with potentially wide impact is the treatment of depression, which most often occurs in primary care settings through antidepressant medication (Mojtabai & Olfson, 2008; Waitzfelder et al., 2018). This approach to treating depression has shown mixed outcomes. A large meta-analysis showed that antidepressants were only clinically effective for severe depression (Fournier et al., 2010). A recent review also found antidepressants to be ineffective in improving patient quality of life over a two-year period (Almohammed et al., 2022). Perhaps for these reasons, over three-quarters of primary care patients discontinue their antidepressant within six months of receiving a prescription (Larson et al., 2022). Combining antidepressant medication with psychosocial treatments such as ACT is the recommended approach in primary care (Park & Zarate, 2019), and is also the strategy that has produced the best patient outcomes (Cujipers et al., 2020). Despite this, antidepressants alone remain the most common response for individuals seeking relief from depression in primary care. Integrating ACT into primary care in an accessible format could offer patients more acceptable and sustainable options for their depression treatment.

ACT for depression has shown promising outcomes (Bai et al., 2020). However, notable challenges exist in maintaining engagement with depressed clients over time, who have elevated treatment dropout rates compared to other psychiatric conditions (Fornaro et al., 2020). A potential way of improving engagement with depression treatments is considering the format in which they are delivered. Whereas much attention has been given to the types of behavioral interventions used for depression (e.g., ACT versus traditional CBT), less focus has been on the method through which coping strategies are communicated, such as didactic versus narrative. Given that challenges with attention and concentration are often concurrent with depression (Keller et al., 2019), a notable proportion of clients may struggle in learning behavioral coping skills in an overly didactic manner. Moreover, those seeking depression treatment in primary care are accustomed to brief consultations and may be less motivated to initiate a full course of traditional psychotherapy. For these reasons, brief and engaging narrative approaches to depression in primary care may help teach more patients effective behavioral coping skills.

While older forms of narrative therapy have shown efficacy in the treatment of depression (Vromans & Schweitzer, 2011), these interventions have been less empirically validated than newer CBTs such as ACT. Teaching ACT-based psychological flexibility skills for depression through a narrative framework may offer an engaging alternative that could serve a wide audience. Additionally, learning about psychological flexibility through the engaging medium of a story may pique an interest in psychosocial approaches more broadly. This could lead to patients seeking out more specialized psychosocial treatments to meet their personal needs, such as individual counseling or

longer-term self-help. Various psychosocial interventions for depression have shown lasting effects on symptom alleviation (Lemmens et al., 2018), whereas patients treated with only antidepressants often remain unchanged on key outcomes (e.g., quality of life) over time (Almohammed et al., 2022). Narrative interventions, in this sense, could serve to “open the door” to the psychosocial treatment of depression. Importantly, building this pathway for primary care patients could ultimately lead to better outcomes compared to the dominant approach of antidepressant medication alone.

The Current Project

The following set of manuscripts establishes a rationale for integrating storytelling into modern CBTs and present, as a proof-of-concept, a narrative-based ACT intervention designed for primary care patients taking antidepressants. In the first paper presented herein, a contextual behavioral account of storytelling lays out a foundational understanding of how functional qualities of narrative relate to clinically relevant psychological processes. Additionally, specific recommendations are offered for clinicians to integrate narrative techniques into practice within modern CBTs such as ACT. Building from this conceptual grounding, the second paper reports on a randomized controlled trial of *LifeStories*, a brief narrative-based ACT intervention for primary care patients. In this study, *LifeStories* was compared to the standard treatment approach of antidepressants in its ability to reduce depression severity and improve quality of life. We also examined whether *LifeStories* promoted interest in other psychosocial treatments for depression as a test of the theory that immersive personal stories could lead patients to seek additional support for depression beyond medication. The intention of this project is

to expand the reach of modern behavioral interventions by drawing upon the innate human tendency to tell and listen to stories. Examining stories through the lens of modern psychological science can help illuminate their potential to address pressing clinical issues. Applying storytelling to mental health could benefit many individuals by creating a pathway to effective, evidence-based psychosocial interventions to meet their needs.

CHAPTER II

INTEGRATING STORYTELLING INTO THE THEORY AND PRACTICE OF CONTEXTUAL BEHAVIORAL SCIENCE

Publication status: Published

Citation: Davis, C.H., Gaudiano, B.A., McHugh, L. & Levin, M.E. (2021). Integrating storytelling into the science and practice of contextual behavioral science. *Journal of Contextual Behavioral Science*, 20, 155-162.

Introduction

We are storied beings. Throughout history, humans have used narratives, or the representation of events in a sequence, to make sense of the world around them and influence the feelings and behaviors of others (Genette et al., 1982). Storytelling is ubiquitous across all known global cultures, even in the absence of a formal written language (Brown, 2004), and has been described as an adaptive evolutionary trait that helps members of a society cooperate with one another (Sugiyama, 2001). All forms of language are inherently social, whether in communicating useful information about the environment, regulating the behavior of others, or inferring intentions of others (Hayes & Sanford, 2014). Storytelling, however, with its unique capacity to engage our attention, may be a more elaborated form of communication to meet these functional ends (Sugiyama, 2001), such as seen in folklore, which is used globally to transmit and maintain culturally-specific norms and values (Ben-Amos, 1971).

The potential role of storytelling in psychological interventions has been explored for decades, such as in the postmodern framework of narrative therapy, which argues that individuals “make sense of their lives by assembling specific events together into a series of dominant plots” (Monk, 1997, p. 85). A social constructivist viewpoint offered by Meier (2012) similarly posits that attending to stories in therapy helps clients “deconstruct and reconstruct their assumptions and perceptions” (p. 2) by recognizing their own worldviews as products of languaging and cultural norms. More recently, empirical studies have revealed that engagement with stories in clinical settings can address diverse issues as substance abuse recovery (Mancini, 2019), diabetes management (Gucciardi et al., 2019), and coping with chronic health conditions (Lipsey et al., 2020). Despite these historical precedents and promising evidence, storytelling as a route to behavior change remains largely uninvestigated in the field of contextual behavioral science (CBS). While related forms of language such as analogy and metaphor have been examined through a CBS lens (Foody et al., 2014), storytelling possesses a number of distinct qualities that warrant greater understanding. These include how a “narrative world” (Bezdek & Gerrig, 2017) is constructed, the role of characters acting on this world, and the function of the discourse that is established between the narrator and listener of a story, through which meaning is ultimately derived (Ricoeur, 1980).

Despite their use of stories and metaphors as components of therapy, CBS-based approaches such as Acceptance and Commitment Therapy (ACT; Hayes et al., 2011) tend to be delivered, as a whole, through traditional talk therapy or self-help formats. At the same time, studies show that meaningful changes in personal beliefs and attitudes can occur after exposing individuals to narratives in experimental settings, with such changes

theorized to occur through “transportation,” or the drawing on of emotional aspects of one’s worldview as opposed to rationality alone (Mazzacco et al., 2010). Furthermore, while an individual’s need for *cognition* has historically been identified as a key moderator in the persuasiveness of an argument, when engaging with stories, a need for *affect* is associated with high transportation and persuasion (Appel & Richter, 2010). Therefore, clients who tend to seek out emotional situations may be likely to be influenced by messages delivered in a narrative format compared to more didactic presentations.

The boundaries of what constitutes a narrative have been subject to great debate (Ryan, 2017), and the diversity of storytelling forms may appear to make any universal account elusive, which would require a conceptualization that orients to broad qualities of stories present across culture and format. In other words, it would involve identifying clear “signals” that distinguish storytelling from the many other forms of language we encounter. The processes of functional coherence, perspective taking, and transformation of function are all found in relational frame theory (RFT; Barnes-Holmes et al., 2001), a functional contextual account of human language and cognition which contributed to the development of applied interventions such as ACT. While these three processes can be incorporated into the analysis of any form of language, they may hold particularly valuable insight into how stories derive their psychological impact. The containment of events, personalities, and ideas within the medium of story facilitates their coherence with one another. In turn, fostering the ability to make seemingly disparate psychological experiences cohere through a “narrative lens” may have important consequences for behavioral health. Assuming the perspective of characters within a story may contribute

to the ability to cultivate flexible awareness of one's perspective in the ongoing flow of events, which has been identified as another important aspect of psychological wellbeing (Montoya-Rodríguez et al., 2017). Lastly, while all forms of language can carry psychological function across many contexts, stories deliver powerful messages transmitted from narrative voices to their listeners in a particular way. Understanding how this dialogue between storyteller and listener occurs from a functional perspective may help leverage its influence on behavior.

In the sections that follow, we expand on these components of storytelling and argue that narrative approaches represent a viable untapped resource in the CBS tradition, and one that holds potential for developing innovative interventions. First, we offer a basic framework for understanding how stories derive their psychological impact through the lens of RFT and how these principles apply to clinical settings. We then summarize research to date on narrative approaches to behavior change and offer practical suggestions for their integration into CBS-based treatments. Our aim is to capture aspects of storytelling as it relates to the prediction and influence of behavior, and in turn encourage the development of innovative approaches that are engaging to both clients and practitioners.

A CBS Account of Storytelling and its Clinical Applications

Relational Frame Theory

RFT is a contextual behavioral account of human language and cognition with an accelerating rate of empirical research evidence (O'Connor et al., 2017). RFT describes how human language acquires its psychological power through the relating of stimuli, in

particular through arbitrarily applicable relational responding (AARR), a generalized operant behavior developed in early childhood (Hughes & Barnes-Holmes, 2016). While humans and animals alike can relate stimuli based on their physical (non-arbitrary) properties such as size and shape, humans acquire the unique capacity to relate stimuli based not on physical properties but rather on contextual cues (same, more than, less than, etc.) that specify the relation at issue. In this way, AARR allows *symbolic* relations to be formed. AARR possesses the key properties of mutual entailment (e.g., if $A = B$, then a bidirectional relation of $B = A$ is derived), combinatorial entailment (e.g., if $A = B$ and $B = C$, then the relations of $A = C$ and $C = A$ are derived), and the transformation of stimulus function, which posits that the psychological properties of stimuli can be transformed via AARR. For instance, if a stimulus A has an aversive function, and B is taught to be “greater than” A, then the function of B may be “transformed” to be more aversive based on the relation itself and in the absence of direct experience (e.g., if in an experiment one receives a small electric shock when “A” is flashed on a screen, they may expect a more painful shock when presented with “B,” even if this has not been demonstrated). The apparent simplicity of AARR conceals its pervasive influence. The ability to frame stimuli and events relationally has been described as “the common trunk from which many complex behaviors spring forth” (Hughes & Barnes-Holmes, 2016, p. 179). Below we describe a selection of “branches” of AARR that may hold particular utility in understanding storytelling. Definitions and examples of these concepts are additionally presented in Table 1.

Coherence within Narrative Structures

The stories that captivate us come alive in many ways: strong characters, distinct ambiance, a twisting plot, and so on. Despite this multifaceted nature, stories are contained by certain boundaries. That is to say, the building blocks of a narrative such as character, setting, and plot cohere by virtue of their containment within a story form. Within a narrative structure, coherence is derived when often disparate elements convene over time through a shared message or voice. A powerful example in literature is the story told by the unnamed narrator in Ralph Ellison's *Invisible Man*. Through a series of vignettes across time and place, the narrator weaves together a story capturing the invisibility and prejudice experienced by Black Americans in the early twentieth century. Ellison is said to have drawn from the aesthetics of bebop jazz in constructing a narrative that is at once improvisational as well as coherent in its portrayal of systemic discrimination (Spaulding, 2004). Complex elements of stories such as moral ambiguity, paradox, abstraction, and metaphor reflect the multiplicity of human behavior. These complexities fit within a narrative architecture where they are likely to be more acceptable than when present within our own lives. No matter how multifaceted or even contradictory the elements comprising a particular narrative may be, the fact that the content is "framed" by existing within a narrative structure allows the possibility for a coherent meaning to emerge, and new relations to be formed.

In this way, stories achieve their coherence via structural elements as opposed to specific content. Utilizing such a framework in therapy lends itself to an experiential form of learning that can be distinguished from didactic, instruction-based methods common in many psychotherapies. "Stepping in" to the world of a story in therapy provides rich opportunities for promoting coherence at the individual level. While the

behavior of a character may go against initial accounts of their attributes, “following” a story from beginning to end necessarily involves holding lightly to these preconceptions as we observe a character persisting in behaviors that are likely to challenge such initial assumptions. For a client, hearing a story provides an opportunity to “step in” to a context where contradictions can indeed be coherent, which may help to foster a stance in their own life from which they can respond more flexibly to changing environmental contingencies. Such a shift involves observing disparate elements of one’s experience (i.e., “I can carry some depression with me *and* pursue new activities”) as part of one’s coherent sense of self, a vantage point from which the tracking of contextual relationships in one’s environment (i.e., context sensitivity) is more easily achieved. Over time, growing this ability ideally leads to increased instances of “functional” coherence, or choosing actions that are consistent with an individual’s sense of meaningful living (Villatte et al., 2015).

The extent to which coherence governs both our internal world and overt behavior continues to be investigated. It has been proposed that coherent relations between events are reinforced “from the cradle to the grave,” with incoherence being punished by the socio-verbal community (Hughes & Barnes-Holmes, 2016, p. 164), and studies have begun to test this proposition through controlled experiments (Bordieri et al., 2016). A drive for coherence dictated by the socio-verbal community can lead to dysfunctional patterns of behavior, such as in the adherence to inflexible life narratives that we will describe later. However, engagement with storytelling may provide a framework for a healthier model of coherence, in which one’s views on their life narrative become more

expansive and adaptable, and thus able to function according to personally chosen directions.

Characters as Catalysts for Perspective-Taking

If the first step of “entering in” to a narrative world relies on the coherence achieved by its structure, the next and consequential step consists of noticing and assuming various perspectives within a story. Storytelling demands a good deal of perspective taking by the listener in that we are invited to inhabit the mind of characters as they experience observations, struggles, and resolutions. While techniques such as analogy and metaphor may similarly ask the client to imagine themselves in a unique situation that helps to reframe their perspective on some behavior (Foody et al., 2014), storytelling relies more heavily on the actions of characters with perspectives of their own, and how we situate ourselves in relation to them. Engaging with characters in a story has been theorized as interlocking processes of assuming the viewpoint of another while also establishing one’s perspective as the onlooker to narrative events (Coplan, 2004). Perspective taking as a behavioral process has been examined extensively from a CBS perspective (McHugh & Stewart, 2012), and the reliance of storytelling on both inhabiting and distancing from the perspective of another, in a fluid manner, may be a critical aspect of what lends narrative communication its clinical potential.

The process of situating ourselves in a certain perspective, and the ability to shift to others, has been previously explicated through the framework of RFT. Notably, RFT accounts of metaphorical reasoning have pointed to the role of deictic relations in explaining how metaphors derive their effect through perspective taking (Foody et al.,

2014). Deictic relations specify the perspective from which we experience the world, and are comprised of the relations I—YOU, HERE—THERE, and NOW—THEN. Listening to a friend describe a past struggle with depression, we might say “that must have been really hard for *you* back *then*,” with such a statement establishing ourselves (the unstated *here* and *now*) in relation to the events in the story (*you* and *then*). Importantly, these relations are manipulable through contextual variables that govern them, and a “deictic shift,” or change in perspective, can act as a clinically-significant moment in treatment (Foody et al., 2014). Inviting a client to describe a difficult feeling (such as anxiety) as a bodily sensation or physical object, for instance, can bring the emotion from the distal perspective of THERE-THEN to one that is experienced HERE-NOW. Located in the present, the client can then choose to treat the emotion in new ways, such as holding anxiety in their lap as something precious, thus creating a new context in which the emotion is experienced.

To further understand how stories may help to facilitate deictic shifts, it is useful to look at the interrelated ACT concepts of self-as-content and self-as-context as described by deictic relations. In self-as-content, the client’s sense of self participates in a high-strength relational network with rigid “self-stories” about oneself (also called a conceptualized self) that serve to excessively govern behavior. In turn, ineffective behavioral patterns proliferate on account of their consistency with self-stories, while alternative and more contextually-sensitive behaviors fail to emerge due to their perceived inconsistency with conceptualized self-stories. Self-as-context, in contrast, refers to experientially contacting an “observing self” that is distinct and larger than the conceptualized self, and is thus able to both contain and transcend established self-stories

while allowing room for broader patterns of behavior. In deictic terms, the client is able to assume the perspective of I-HERE-NOW while noticing rigid self-stories as located THERE-THEN, thus reducing the literal functions of these self-stories with respect to behavior by relating to them as merely another experience arising in the moment.

Stories can serve to facilitate the shift from self-as-content to self-as-context by offering a vehicle through which the listener can adopt a new vantage point for observing their own experiences. While listening to a story one may think “what would the character in this story do in my situation?” or “If my life is like a story, what could happen?” Asking such a question facilitates the transformation of a I-HERE-NOW coordination into one of I-THERE-THEN by allowing the possibility that one’s current behaviors are but one of a number of potential actions. In turn, considering the perspective of another (such as a character in a story) opens up a wider range of possible behaviors, including those which “go against” restrictive self-stories. In simpler terms, this shift allows the client to “rewrite” their own story by reframing it in a more experiential manner. For example, a client with a history of emotional abuse may impose on herself an expectation to be “perfect” in her relationships. This self-story may involve being unemotional, submissive, or reluctant to convey her own needs to a partner. This pattern of behavior, in turn, leads to feeling a lack of the intimate connection that she desires. Hearing a story about someone who struggled with a similar pressure to be “perfect” and who chose to pursue intimacy regardless (even if in a qualitatively different context) may help the client change her behavior not merely by modeling that of the individual featured in the story (which would likely be restricted by individual differences), but by either assuming the perspective of the character in her own life or by

considering her own context to possess narrative characteristics in which such outcomes are plausible. Both can be considered means to facilitate entering into a “narrative world” (Green, 2004) in which the self (like a story) is conceptualized as a container for all psychological content (Villatte et al., 2015).

The Transformation of Stimulus Function through Narrative Discourse

Along with these shifts in perspective that storytelling facilitates through noticing the vantage point of both character and narrator, stories appear to be efficient at transferring the psychological qualities contained within them to the experience of the listener. Again, clues to how such a transformation occurs can be found in the analysis of metaphor. When used in clinical conversation, metaphors rely on the physical qualities they represent (e.g., quicksand being more difficult to escape the more one struggles) that are related in a frame of coordination to a behavioral process (e.g., anxiety being made more severe by efforts to avoid it) (Foody et al., 2014). That a story holds a great deal more content than the typical metaphor (multiple events occurring in varying contexts, numerous characters and their intersecting actions) might appear to render it unwieldy in regards to the complexity that would be involved in unpacking each of its “physical qualities” and their potential symbolic functions. However, a pragmatic approach to deriving the functions within a story may be through the revealing of its overarching narrative voice as opposed to such individual elements. It is “finding the I” of a story and filtering content through its situated perspective. In more technical terms, the narrative voice of a story guides the listener/reader toward pertinent symbolic functions that are the

result of subjective and intentional summations of smaller pieces of raw material (discreet events, character descriptors, etc.).

An important function of the narrative voice is in its use of “narrational code,” or the collection of signifiers that establish the story as a distinct object in relation to external systems (Barthes, 1975). These codes, or pieces of language that signal to an audience that they are engaged in a narrative world, serve an important purpose in transferring the psychological qualities of stories to the listener’s own experience. Furthermore, such signifiers draw the boundary between the narrative world and the behavior of organisms acting outside of it. The narrative signals may be explicit (“once upon a time...”) or innocuous (the act of opening a book, going to the cinema, or becoming attuned when a friend says “let me tell you something that happened to me”). Narrational code can also be leveraged through the “breaking” of expected rules about its form, with a striking example from film being the work of Indian auteur Satyajit Ray, whose work often illuminated the struggles of everyday people in his native Bengal. Ray spoke of breaking with cinematic storytelling norms through methods such as capturing the unspoken emotional reaction of one character after another leaves the scene in order to communicate subtle aspects of their interior lives (Cardullo, 2019). Regardless of their particular form, narrational codes serve to establish a discourse between story and audience and, in turn, set up an important relational network across which psychological qualities can travel.

Through the use of narrational code, a complex set of information is filtered through the lens of a storyteller who packages it into intentional and persuasive messages. These messages function as the summation of discreet events into derived psychological

qualities. For instance, we might hear a personal narrative of an adolescent boy who is making efforts to open himself up to positive emotional experiences in his social life despite struggling with a history of familial negligence in his childhood where making himself vulnerable led to disappointment and depression. In this scenario, the elements holding symbolic function are not physical properties but rather broad representations of actions such as “overcoming adversity” or “taking social risks.” Critically, though such representations may appear sufficiently abstracted, the work of deriving new relations is not “done for us” by the narrative voice itself. Instead, the potential for generating new relations out of stories arises from making experiential gestures such as positioning oneself within the constructed narrative world or transferring the narrative’s logic onto one’s own life circumstances. Such moves facilitate the transformation of symbolic function in clinical contexts by establishing networks of relations through which an encountered narrative construct such as “bravery” might be coordinated with potential courses of action, all contained within a hierarchical frame. In other words, new relations in stories can be discerned through an extended discourse between the reader/listener and the narrative world itself. This is in addition to relations that might emerge from abstracting particular actions or images within a larger narrative (i.e., their physical properties), as occurs in metaphor.

The degree to which a particular narrative is more or less successful at affecting behavior through these means may depend on a multitude of factors. These include the extent to which an audience identifies with characters in a story, an issue noted in prior research using narrative to promote health-positive behaviors within marginalized groups (Murphy et al., 2013). Identification with characters as a determinant of the behavioral

effects of a narrative has resonance with Bandura's original social learning theory (1977). However, further work is needed to elucidate behavioral differences between "modeling" and more nuanced responses to narrative content such as the transformation of stimulus function, which is likely to involve numerous and potentially contradictory elements of a story. Other potential factors such as identification with the setting, cultural norms, or moral values contained within a narrative may be important moderators that determine the utility of a given narrative on clinically-relevant processes. Establishing more precise methods to isolate and measure the effects of such variables would aid in tailoring stories to meet unique clinical presentations or targeted therapeutic change processes.

Self-Rules and Self-Stories: Narrative and Psychopathology

In order to more clearly see how functional coherence, perspective-taking, and transformation of function in storytelling relate to clinical intervention, it is helpful to consider the narrative-like qualities present in a contextual behavioral model of psychopathology. An emphasis in this model is on the negative impact of overreliance on self-directed rules, also called pliance (Törneke et al., 2008). Pliance becomes especially maladaptive when pertaining to the rigid control of private events based on such rules originating from the self or from socially-constructed contingencies. A more elaborated set of self-directed rules can also be thought of as a self-story. This kind of talk is common in psychotherapy, where a client might express something along the lines of "I had a traumatic childhood, so it makes sense that I'm depressed." According to Monk (1997), this class of client language constitutes a "problem narrative," or one that "emphasizes certain experiences at the expense of others so that the coherence of a

storyline can be maintained” (p. 13). From a CBS perspective, such restrictive self-stories additionally serve as a clear demonstration of the potentially harmful behavioral consequences of human language and cognition and highlights the importance of self-stories as targets of intervention.

Re-writing inflexible narratives about oneself begins with acknowledging the complex and largely unconscious processes that maintain them. Through operant responding, humans learn increasingly complex networks of relations between stimuli in their environment and their own cognitions, memories, and emotional responses (McHugh et al., 2019). When someone experiences an aversive emotional reaction in one context (e.g., in an abusive parental relationship), they are likely to relate it to other contexts that do not involve direct contact with the initial adversity (such as listening to others describing healthier parental relationships) and which are likely to generate psychological responses nevertheless (such as feeling that a meaningful life is inaccessible to them as compared to others with a healthier upbringing). Zettle (2007) offers an exercise to clients struggling with depression, a condition in which these kinds of self-stories are often pervasive. Clients are asked to spend time writing the “story of their life” up until the present. Then, the therapist and client review the story together and look for instances where a self-story related to depression is coloring the way that life events are spoken about. From here, treatment can proceed with an awareness of which kinds of activities or ways of viewing oneself are especially restricted, which can then be targeted with skills such as acceptance and cognitive defusion.

Summary

A unique form of human language—storytelling—possesses a number of qualities that contribute to its utility as a method of psychological intervention from a CBS perspective. The coherence achieved by the way that stories are constructed and told lends itself to framing psychological content in a similar manner, promoting greater context sensitivity and encouraging choices of actions that are functional to individual meaning. The presence of multiple points of perspective within a narrative (and the necessity to flexibly shift between them) promotes experiential contact with a hierarchical self in which private events are more likely to loosen their regulatory grasp on behavior. Lastly, narrative discourse allows a generative network of symbolic relations to be created, through which the transformation of psychological functions occur.

Storytelling, as the functional process we have described, lends itself to clinical utility no matter the particular form it may take. The psychological functions of storytelling can be equally met through the use of literary, folkloric, filmic, theatrical, artistic, or other narrative mediums. Inherent too in a functional approach to narrative is the irrelevance of realist versus fictive representations utilized in stories, as both could be equally likely to meet functional ends dependent on the context (e.g., employing a fairytale with a child or an explicit story of psychological struggle with an adult). While a great diversity of narrative approaches may share the same functional properties, certain styles may be more readily adaptable to clinical settings, such as first-person patient narratives adapted into behavioral interventions. In the following section, we advocate how narrative interventions can expand the reach of CBS not merely by communicating established therapeutic principles (e.g., from ACT interventions) in new ways, but by

using the modality of storytelling itself as an experiential demonstration of several core routes to behavior change.

Recommendations for Using Storytelling in CBS-Based Interventions

Despite the theoretical rationales we have laid out, only a limited number of interventions have been published to date that utilize narrative techniques to deliver CBS-based treatments. In Table 2, we briefly describe two of these protocols. We additionally provide a list of other behavioral interventions which have used storytelling methods as the central means of treatment delivery, to show the breadth of potential issues that can be addressed. Meier (2012) describes clinical narratives as “blueprints for actions in particular contexts” (p. 7), suggesting that the ultimate behavioral targets of interventions can be brought into the therapy room and enlivened through the use of storytelling. While ACT interventions may feature elements of storytelling such as in expanded metaphors like Passengers on the Bus, treatment protocols that utilize storytelling as an overarching medium to transmit therapeutic principles broadly are lacking, and may uniquely aid in the facilitation of the behavioral mechanisms we have outlined above. Below we have outlined a number of recommendations for developing such treatments in a manner that is consistent with the aims of CBS. These suggestions are additionally summarized in Table 3.

First, behavioral practitioners should consider how stories can bring a “narrative lens” to issues of case conceptualization. Theoretical work has begun to articulate methods of describing diverse clinical presentations in terms of patterns of derived relational responding that contribute to overarching patterns of behavior bound to

particular “self-stories” (Barnes-Holmes et al., 2018). By using a multi-dimensional, multi-level framework (MDML) to understand client narratives, the therapist can understand how different types of relational responding may be working to maintain a dysfunctional self-story. For example, the statement “I’m so pathetic, and nothing will change that” involves mutual entailment (one dimension of relational framing) of the self with the quality “pathetic,” while additionally indicating this relation has been present for a long time, or is low in derivation (one level of relational framing). A more detailed description of MDML is available (Barnes-Holmes et al., 2018), and this approach represents a pragmatic way of integrating narrative into case conceptualization deserving of further study.

Second, CBS-informed models of psychopathology focused on self and perspective-taking have emphasized the importance of “healthy selfing,” or behavioral repertoires which cultivate a stable and persistent sense of self, that contain yet are undamaged by ever-changing emotional states and external events (McHugh et al., 2019). Critically, the development of such repertoires can be impeded early if children are not provided relevant cues inviting them to consider their discrete feelings and challenges as part of the larger tapestry of their experience. Clinicians ought to make efforts to understand clients’ histories in this respect, as well as current contextual factors that may continue to reinforce rigid self-conceptualizations.

Third, by taking into account these narrative-informed aspects of the self, practitioners are able to draw from a variety of methods to engage and alter them in treatment. As we have described, engagement with storytelling may help to foster “healthy selfing” repertoires by inviting the client to be a character, and the author, in

their own life story and thereby participate in a hierarchical frame with content such as life histories and psychological experiences. These processes may be facilitated experientially in therapy by “sharing a narrative” (Barnes-Holmes et al., 2018), or coordinating the deictic-I’s of client and therapist so that the client’s self-story can be observed from a distance, and thus providing the opportunity in therapy to reframe or “rewrite” the self-story in the service of a less constricted and more meaningful life. Potentially relevant to this process is therapist self-disclosure, which is often used to illustrate key concepts in ACT by its originators (e.g., Hayes, 2019; Wilson, 2009), and can serve to “level the playing field” between therapist and client (Walser, 2019). Therapists sharing elements of their own life story, as it stands to benefit their client, could be one means of accessing the shared narrative or “us consciousness” that exists in the therapy room (Walser, 2019). In addition to spoken language, therapeutic storytelling could involve multimodal exercises. Therapeutic uses of art, drama, and creative writing that have largely been sidelined in third-wave approaches may have strong theoretical justification in the service of constructing and appreciating more flexible self-narratives.

Fourth, in addition to their potential use within individual psychotherapy, group interventions may particularly stand to benefit from the integration of storytelling techniques. While group therapy has historically incorporated the sharing of individual client narratives (e.g., Alcoholics Anonymous; Humphreys, 2000), protocols in the behavioral tradition often rely on the teaching of therapeutic skills in a didactic manner. Importantly, the sharing of personal narratives in therapy groups may help to reveal “universal narratives” such as the desire and futility of efforts to control unwanted internal events. The acknowledgment of such shared human struggles is an important

component of ACT, and encouraging the sharing of personal stories that speak to these challenges (by both participants and facilitators) may help in creating group environments that are more equitable and empowering to clients. CBS-based protocols have likewise been shown to be effective in group formats for clinical populations at greater risk of stigmatization, such as patients with severe mental illness or “treatment resistant” presentations (Clarke et al., 2014). Utilizing narrative to both share personal experience as well as engage in treatment may help to increase the impact of interventions with these more vulnerable populations.

Fifth, storytelling methods can bring unique innovations to self-help interventions, which have the potential to reach broad and diverse clinical populations. While treatments such as ACT have demonstrated effectiveness when adapted to self-help formats (French et al., 2017), barriers persist in self-guided interventions such as high dropout rates and lack of engagement (Karyotaki et al., 2015). Given the universality of storytelling, self-help interventions could be developed that utilize captivating personal narratives to communicate key therapeutic principles. Such content is increasingly economical to produce and distribute, given the proliferation of technologies such as web-based streaming video, making it feasible to add storytelling elements to existing self-help protocols or to create standalone interventions. Importantly, generating narrative content for self-help interventions allows for the capturing of diverse voices within a community, providing a means of teaching therapeutic strategies that may be more relatable and engaging, especially to underrepresented groups, than traditional formats. Thus, self-help treatment developers should consider taking an iterative approach to treatment development, such as by seeking to recruit a diverse set of

narrators and by working with community members to refine interventions that are engaging and relatable to their target audience (e.g., by holding focus groups). As access to traditional psychotherapy is often limited due to geographical, economical, or stigmatizing factors, integrating narrative elements into self-help treatments can help to further expand the impact of CBS principles into areas of need.

Future Directions

While many seeds of such an endeavor have been sown, merging principles of storytelling with CBS requires more intentional and expansive lines of study. Basic research can examine differences between encountering narrative content and the act of storytelling itself. Such clarification would illuminate whether mere engagement with narrative content may possess certain therapeutic benefits, or whether active participation in constructing personal narratives is necessary for clinically-relevant behavior change. Additionally, we propose that designing interventions through a ground-up narrative lens, by leveraging the inherent CBS-consistent processes that comprise storytelling itself, can help bring CBS to new audiences and concerns in impactful ways. Alongside these efforts, client narratives should be considered as a means of assessing treatment outcomes in CBS interventions, such as through the coding of personal stories captured before and after interventions (e.g., Langlois et al., 2020).

Lastly, it is important to note that while such approaches may be innovative within the field of CBS, storytelling is nearly as old as humanity itself, and the benefits of engaging with narrative have been seen within various cultural traditions for millennia. It is therefore imperative that the journey towards narrative-based CBS treatments respect

and incorporate the diverse storytelling traditions that already exist across global cultures. Empowering narrative traditions historically silenced by the “objective” stories propagated by dominant groups (Sium & Ritskes, 2013) has indeed been described as a central goal of narrative therapy (Monk, 1997). Informing treatment development with culture-specific storytelling traditions could serve to both broaden the impact of CBS-based treatments globally as well as honor the inherent psychological and community-building benefits of such practices.

CHAPTER III

**A RANDOMIZED CONTROLLED TRIAL OF AN ACCEPTANCE AND
COMMITMENT THERAPY-BASED NARRATIVE INTERVENTION FOR
INDIVIDUALS TAKING ANTIDEPRESSANT MEDICATION**

Publication status: Not yet submitted

Abstract

Depression is most often treated in primary care settings, where the prevailing treatment is antidepressant medication. Primary care patients with depression are less likely to be exposed to nonpharmacological psychosocial interventions, despite evidence suggesting many of these treatments are effective. An example is acceptance and commitment therapy (ACT), a behavioral treatment for depression with a strong evidence base. A self-guided ACT intervention with a narrative delivery format was developed with the intention of creating a treatment option for primary care patients that was highly accessible. Titled *LifeStories*, the online program features videos of real individuals sharing coping skills for depression based on lived experiences and key ACT principles. We tested *LifeStories* as an adjunctive treatment for 93 primary care patients taking antidepressants. Results showed that while *LifeStories* did not have a differential effect on depression severity nor psychological inflexibility, it did lead to greater improvements in mental health-related quality of life and increased patients' interest in additional treatment compared to the antidepressant medication alone condition. Along with improving quality of life, incorporating personal storytelling into self-guided

psychosocial interventions could help build a “doorway” for primary care patients to obtain sustainable long-term care for depression.

Introduction

Depression is prevalent in the United States, with nearly 20.5 million Americans estimated to suffer from a major depressive episode annually (Substance Abuse and Mental Health Services Administration, 2020). A significant portion of these individuals will seek depression relief from a primary care provider, with nearly three-quarters of Americans going to this type of provider rather than a psychiatrist, therapist, or other specialized mental health practitioner (Mojtabai & Olfson, 2008). The prevailing response to depression in primary care is antidepressant medication. In a review of over 240,000 primary care patients diagnosed with depression in multiple states, over 80% were given an antidepressant as a first-line treatment (Waitzfelder et al., 2018). These prescribing trends contribute to a very high rate of use of this class of drug generally. Approximately 13% of all adults in the United States use antidepressants in a given month, with a disproportionate 17% of women taking this class of medication (Brody & Gu, 2020).

Despite advocacy for primary care physicians to reserve first-line pharmacotherapy for severe cases of depression (Park & Zarate, 2019), the high volume of antidepressant prescriptions still being given indicates that this suggestion is not always followed by doctors as a whole. Additionally, a large meta-analysis showed that with the exception of patients with severe depression, the therapeutic effect of antidepressants was negligible compared to placebo pills (Fournier et al., 2010).

Furthermore, recent evidence from a large database of medical records in the United States indicated that use of antidepressants did not significantly improve health-related quality of life, a key patient outcome, over a two-year period (Almohammed et al., 2022). The lack of clear effectiveness on both depression severity and quality of life may be one reason why over 75% of primary care patients discontinue the antidepressant prescribed to them within six months (Larson et al., 2022). It is clear that patients seeking healing from depression in primary care need effective and sustainable treatment options beyond antidepressants alone.

Combining antidepressants with psychosocial treatments (e.g., cognitive behavioral therapies) has been shown to be the most effective treatment approach, compared to either option alone, as reflected in a recent meta-analysis of nearly 12,000 patients (Cuijpers et al., 2020). Integrating nonpharmacological interventions into primary care settings is difficult, however, due to barriers including staffing, cost, and reluctance of patients to initiate psychosocial depression treatment (Waitzfelder et al., 2018). Other patient-side barriers notably include stigma around treating depression, particularly among historically marginalized patient groups (Sanchez et al., 2019).

As an alternative, low-intensity and self-guided psychosocial interventions could function as a “doorway” to increase patients’ willingness to pursue more specialized psychological support for depression. This could be one strategy to address the relatively low rate of primary care patients starting psychotherapy compared to only using antidepressants (Waitzfelder et al., 2018). In addition to potentially promoting interest in more intensive resources, there is also reason to suggest that self-guided treatments for

depression can produce meaningful improvements in symptoms on their own (Karyotaki et al., 2017).

Acceptance and commitment therapy (ACT; Hayes et al., 2011) is a modern cognitive behavioral therapy that has seen a growing evidence base for treating depression, including when adapted to online self-help (Cavanaugh et al., 2014; Spijkerman et al., 2016; Brown et al., 2016; French et al., 2017). ACT treats depression by increasing psychological flexibility, or the quality of mindfully noticing mental experiences in a non-judgmental way while choosing to engage in meaningful life activities. Promoting psychological flexibility in ACT for depression involves processes such as changing one's relationship to depressive thought patterns, recognizing the impermanence of depressive episodes, and increasing engagement in activities that have been restricted by depression (i.e., behavioral activation).

Self-guided interventions for depression, including those based in ACT, may struggle in maintaining engagement with clients over time, with one review indicating that as high as 74% of patients do not fully complete treatment (Richards & Richardson, 2012). Given this alarming statistic, in addition to the psychosocial treatment barriers in the primary care context (Waitzfelder et al., 2018), there is a need to consider innovations in how ACT can be delivered in a format that is both convenient and captivating to depressed patients in primary care.

Incorporating narrative components could promote patient interest in low-intensity, self-guided behavioral interventions. Importantly, this could help bolster engagement for patients only taking antidepressants who are not using more intensive psychosocial resources due to barriers or disinterest. Storytelling is a means of

transmitting information that is uniquely engaging and ubiquitous across global cultures (Brown, 2004). Interventions featuring personal and memorable narratives, even if brief, may also serve to promote patients' willingness to pursue more intensive and specialized support for depression. Storytelling-based treatments have been shown viable for issues as diverse as substance abuse recovery (Mancini, 2019), diabetes management (Njeru et al., 2015), and chronic health conditions (Gucciardi et al., 2016). ACT may be especially well-suited to narrative delivery formats, given that key components of the ACT model are consistent with basic features of narrative communication. Processes such as flexible perspective taking, establishing coherence between one's actions and values, and fostering a sense of self that is distinct from one's transitory emotional experience may all be bolstered through engagement with stories (Davis et al., 2021).

LifeStories is a storytelling-based video intervention designed for primary care patients receiving only antidepressant medication, which specifically draws upon ACT principles. The program was developed by collecting real patient narratives of coping with depression using ACT-consistent methods. *LifeStories* has been empirically evaluated in a pair of pilot feasibility trials (Gaudiano et al., 2017; Gaudiano et al., 2020). In the initial pilot trial, 11 individuals tested the program who were diagnosed with major depression and not receiving concurrent psychotherapy, which is consistent with the standard approach in primary care settings. Over half of participants had clinically significant reductions in depression after using *LifeStories* for four weeks (Gaudiano et al., 2017). *LifeStories* had additional positive effects on the non-reactivity component of mindfulness, and changes in behavioral activation predicted greater improvements in

depression at posttreatment. These findings suggest that *LifeStories*, in addition to improving depression, may also impact symptoms through ACT-consistent mechanisms.

A second pilot study compared *LifeStories* to a video control group (videos teaching the relationship between nutrition and mental health) in a sample of 19 participants, also all diagnosed with major depression and not engaged in other psychological treatment (Gaudiano et al., 2020). Interestingly, both *LifeStories* and the active control group produced similarly large effects in reducing depression, although the sample size was underpowered to detect significant group differences. However, participants who used *LifeStories* endorsed greater narrative transportation, an important construct measuring how invested participants were in the program they used. This would suggest that *LifeStories* may engage viewers in ways beyond didactic presentations of mental health coping skills.

While these initial studies indicate the viability of *LifeStories*, it is necessary to understand the efficacy of adding this adjunctive treatment on depression symptomatology and general functioning as compared to the typical standard of care in primary care settings (i.e., antidepressant treatment alone) in a fully-powered trial. Clarifying the efficacy of adding *LifeStories* to treatment as usual (versus treatment as usual alone) would aid in the further application of storytelling interventions in real-world settings such as primary care clinics, which show high rates of mental health presentations with limited resources to address them. Also, neither prior pilot study tested the effect of *LifeStories* on willingness to engage in other, more intensive mental health treatment, such as working with a therapist. It is important to understand whether exposure to a brief narrative intervention could help direct patients to sustainable

treatment options. This would help address the high rate of patients coming to primary care providers for depression help and ultimately only using antidepressants without adjunctive interventions (Park & Zarate, 2019), despite combined treatment being the ideal treatment approach (Cujipers et al., 2020).

Finally, the two pilot studies of *LifeStories* presented video narratives in a standalone format (i.e., viewed through an online video player), which is potentially less engaging to primary care patients who are new to the ACT approach. For the current study, an online platform was developed that integrated the original videos with additional self-guided content and exercises to aid in the teaching of key ACT concepts. Our intention was to test a program that could be more effectively disseminated in real-world settings like primary care clinics.

To accomplish these aims, an additive trial of *LifeStories* was conducted for depressed primary care patients currently taking antidepressants. The current study compared the efficacy of *LifeStories* as an adjunct to antidepressant treatment compared to antidepressant treatment alone, i.e., the standard first-line depression treatment in primary care. The primary outcome for the study was depression severity. We additionally measured the effect of the intervention on health-related quality of life, a common comorbidity in depression which is also a widely used metric for long-term recovery (Almohammed et al., 2022; Saragoussi et al., 2018), as well as psychological inflexibility, the core maladaptive process in ACT theorized to maintain depression. Lastly, the impact of *LifeStories* on increasing patients' interests in a variety of additional treatment options for depression was examined. This was to meet the goal of determining whether adding *LifeStories* to antidepressant treatment could foster longer-term patient

adoption of combined pharmacological and psychosocial approaches to depression. It was predicted that participants who were given *LifeStories* would see decreased depression, increased health-related quality of life, decreased psychological inflexibility, and increased interest in additional treatment options for depression.

Methods

Participants

A sample of 93 primary care patients were recruited who met the following criteria: 1) 18 years of age or older, 2) residing in the United States, 3) fluent in English, 4) currently taking an antidepressant medication prescribed by a primary care provider, 5) no changes to medication regimen in past six weeks, 6) having at least moderate depression according to the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), 7) not presently seeing a mental health specialist, 8) reliable internet access, and 8) interested in testing an online self-help program for depression. Participants were recruited via online advertising (e.g., Facebook), community flyers, and flyers placed at local primary care offices. Recruitment took place over five months from August to December 2021. Notably, this timeframe was within the COVID-19 pandemic in the United States. To initiate the study, participants submitted their phone number to the researcher who then called them to complete a phone screening to assess eligibility based on the above criteria. Out of the 117 individuals who were screened over the phone, 93 met inclusion criteria for the study (see Figure 1).

Participant demographics are presented in Table 4. The average age of participants in the study was 44.9 years ($SD = 14.3$). The sample recruited was largely

female (84.9%), with 12.9% of participants identifying as male and 2.2% as gender nonbinary. A majority of the sample was white (86.5%), with 6.5% identifying as Asian, 5.4% identifying as multiracial, and 1.1% each identifying as Black or other race. Additionally, 9.7% of participants identified as Hispanic or Latinx.

Regarding medication use, 65 participants (69.9%) reported taking only one antidepressant, 25 (26.9%) reported taking two antidepressants, and three participants (3.2%) reported currently taking three different antidepressants. The most prescribed primary antidepressant was escitalopram (18.3%), followed by fluoxetine (14.0%), and then sertraline and citalopram (both 12.9%). A further 10.8% of participants were taking duloxetine as their primary antidepressant, 8.6% were taking bupropion, 6.5% were taking venlafaxine, 2.2% were taking mirtazapine, and 1% each were taking trazodone, amitriptyline, or desvenlafaxine. Lastly, 10.8% of participants did not know the name of their antidepressant or were prescribed a medication that was not listed (e.g., another psychiatric medication prescribed off-label as an antidepressant). Taken together, these data suggest that a variety of common antidepressants were being used by study participants.

Data on treatment history also suggested that a notable portion of the sample had a history of using antidepressants for many years. Out of the full sample, 40.9% of participants reported taking an antidepressant for longer than five years at some point. A further 24.7% reported a period of taking an antidepressant for between two and five years, and 23.7% indicated a period between six months and two years of continuously taking an antidepressant. In contrast, just 10.8% of participants reported that the longest time they had used antidepressant medication was six months or less. Regarding other

treatment history, a sizable majority of participants (84.9%) reported previous outpatient therapy and 20.4% said they had previously received inpatient treatment. In terms of self-help utilization, 69.9% of the sample endorsed previous use of any type of self-help resource, such as book, website, or mobile app. Overall, the study sample was characterized by long-term use of antidepressants as well as high rates of previous treatment utilization.

Procedures

The study was preregistered through ClinicalTrials.gov (NCT04757961). Interested participants completed an initial phone screening with the researcher to confirm eligibility criteria. The phone screening was also used to ensure participants' willingness to engage in study procedures. For example, the researcher confirmed that the participant was able to devote the time required for using *LifeStories* each week and completing study questionnaires. The researcher also clarified how to use *LifeStories*, explaining the combination of watching videos and completing in-session therapeutic exercises as well as between-session behavioral commitments. This was especially important for participants who had not previously used online self-help. Participants who met all study criteria and expressed interest in testing *LifeStories* were sent a full online consent form.

After completing informed consent, participants immediately completed an online baseline assessment comprising measures of demographics, treatment history, medication use, quality of life, psychological flexibility, and treatment preferences. All questionnaires were administered via Qualtrics, a secure online survey platform. After

finishing the baseline survey, participants were randomized by computer into either medication treatment as usual (Med TAU) or medication treatment plus *LifeStories* (Med TAU+LS). Participants in the Med TAU+LS group received access to weekly online modules of *LifeStories* for a period of four weeks, via links sent to their email. A detailed description of components of *LifeStories* can be found below. Those in the Med TAU group were asked to not use other self-help websites or books for four weeks, after which they were provided access to the *LifeStories* modules on the same weekly schedule as those in the Med TAU+LS group (following completion of the posttreatment survey). All participants were asked to continue their antidepressant treatment as usual as directed by their primary care provider.

Participants in both groups were sent a midtreatment survey two weeks after baseline, and a posttreatment survey four weeks after baseline (i.e., after fully completing the video intervention for those in the Med TAU+LS group). In addition to psychological measures, the posttreatment survey asked those in the Med TAU+LS group about satisfaction with and use of ACT strategies taught in *LifeStories*. Researcher contact involved email and phone call reminders to complete assessments for all participants, and additional weekly email reminders and instructions for accessing the *LifeStories* intervention for those in the Med TAU+LS group.

The *LifeStories* Intervention

The two initial pilot studies of *LifeStories* presented the content of the video intervention in a standalone manner: participants were either asked to come in weekly to a clinic and view videos or were sent links to view the videos online (Gaudio et al.,

2017; Gaudiano et al., 2020). While these delivery methods are appropriate for pilot testing, they lack the interactivity and convenience of fully online mental health interventions. Furthermore, an important component of ACT is behavioral commitments, or the practicing of therapeutic skills in personally meaningful ways between therapy sessions. Users of *LifeStories* may be more motivated to engage in behavioral commitments between viewing episodes if provided with an opportunity to create personally relevant goals and practice associated ACT skills.

Therefore, for the present study, the original videos comprising *LifeStories* were assembled into an integrated online program that added interactive exercises following each episode, as well as features such as lesson summaries, the ability to write and save “Story Notes” (reflections on the relevance of lessons learned to users’ own lives), and between-session behavioral commitments that are set by the user after a series of guided prompts.

After completing the baseline assessment, participants in the Med TAU+LS group were sent a link to access the first online module of *LifeStories*, followed by weekly emails with links to access the other three modules. After receiving the link to an episode, participants could return to the episode any time after to re-watch videos or use practice exercises. Each episode contained two main 15-minute videos as well as optional “bonus” videos of additional personal stories and advice. The themes of each module, or episode, of *LifeStories* are described below, along with a description of interactive online features that were added to increase user engagement and retention of skills. In addition to these descriptions, screenshots of various program features are presented in Appendix A. Participants randomized to the Med TAU group were given access to *LifeStories*

according to the same four-week schedule after completing posttreatment, or two weeks after being sent the survey if they did not complete it.

Episode 1: Changing Experiences of Depression/Finding New Ways of Coping with Depression. Viewers are introduced to the twelve storytellers, as well as the two psychologist “hosts” who provide context and relate the personal narratives to specific ACT coping skills. In this first episode, storytellers share experiences of suffering low points followed by commitments to change, such as one participant sharing a story of suicidal ideation followed by a decision to move cities and pursue a new career. Additional stories involve the discovery of personal coping strategies for depression, such as hobbies, crafts, and social activities. These narratives are offered as demonstrations of cultivating awareness of the transient nature of mood experiences, as well as the benefits of trying out various strategies to cope with depression when it arises. After viewing the stories, users are walked through a series of steps to choose a specific, new coping skill for depression. This includes guidance on making a behavioral goal tangible and addressing potential barriers to implementing it.

Episode 2: Defining your Values/Living a Life that is Consistent with your Values. Storytellers describe how clarifying and acting on their personal values have helped them cope with periods of depression. For instance, a single mother describes following her values of caring for her children and pursuing her own college education despite many personal hardships. In another story, a middle-aged man discusses how he chose to pursue a career in social services after suffering from abuse as a child and discovering meaning in helping others. After viewing these and other stories centered on personal values, users complete an activity ranking the importance of various domains of

life (e.g., family, spirituality, community, education). Then, they are guided through developing an actionable short-term goal in line with a personally salient value.

Episode 3: Developing Acceptance/Self-compassion. This episode teaches the process of psychological acceptance and fostering a nonjudgmental stance towards difficult thoughts and feelings. One storyteller describes developing the ability to “recognize, feel, and deal” with challenging emotions after surviving an upbringing dominated by family trauma and drug abuse. ACT-based strategies for fostering self-compassion are introduced through additional stories, such as a woman who learned to “make peace” with her depression by imagining it as a “friendly dragon.” To help translate these concepts into personal practice, users are asked to evaluate their own responses to depression and whether they function to avoid unwanted feelings (e.g., “keeping busy,” mindlessly browsing the internet, oversleeping). As an alternative and acceptance-based strategy, users are guided through an exercise of writing depressive thoughts and feelings on notecards and carrying them throughout the week.

Episode 4: Living More Fully in the Present Moment/Advice on Finding a Treatment Provider. The first half of this module illustrates how mindfulness practice can be utilized to cope with feelings of depression. For example, one storyteller describes using the Leaves on a Stream meditation to cope with feelings of sadness and frustration while caring for an elderly parent with Alzheimer’s disease. To allow for personal practice during the module, users are walked through a guided video meditation focused on simple mindfulness of the breath. Since a central purpose of *LifeStories* is to encourage users to access further, longer-term behavioral interventions for depression, the final segment of the program offers advice on finding a therapist. This too is shared

through personal stories, with several previous storytellers describing the personal qualities they look for in a provider, such as finding someone who is accepting and open-minded. Users are given an opportunity to select the qualities they would value in a therapist, in addition to being provided information on online directories of ACT and other CBT-practicing therapists.

Measures

Adherence. At posttreatment, participants in the Med TAU+LS group were asked to rate their adherence to the homework exercises from *LifeStories* on a 7-point scale from “Did all recommended assignments” to “Did no recommended assignments” posttreatment, using a scale adapted from previous self-help studies (Abramowitz, Moore, Braddock, & Harrington, 2009).

Satisfaction. Participants in the Med TAU+LS group were also asked at posttreatment to rate their level of satisfaction with the *LifeStories* intervention using the System Usability Scale (SUS; Brooke, 1996). The SUS is a 10-item measure of program usability and satisfaction with established reliability and validity (Lewis, 2009). Internal consistency for the SUS was good in our sample ($\alpha = .87$).

Patient Health Questionnaire–9 (PHQ-9; Kroenke et al., 2001). The PHQ is a 9-item measure of depression severity which asks respondents to report their frequency of depressive symptoms over the past two weeks, rated on a 4-point scale from 0 “not at all” to 3 “nearly every day.” The PHQ-9 is widely used as an assessment of depression in primary care settings, where it has been found to be reliable and valid (Mitchell et al., 2016). The PHQ-9 has additionally been used as an outcome measure in studies of other

web-based interventions for depression (Lüdtke et al., 2018). The PHQ-9 was used to measure depression severity at all assessment points. Internal consistency was acceptable in our sample ($\alpha = .70$).

Short Form Health Survey (SF-12; Ware et al., 1996). The SF-12 is a 12-item measure of quality of life and general functioning. Respondents are asked to rate their present level of physical and mental health-related impairment in daily activities. The SF-12 has shown good reliability and validity (Huo et al., 2018), and was correlated with other measures of quality of life as well as clinical symptoms in a sample of depressed patients (Saragoussi et al., 2018). The SF-12 produces two composite scores, one for physical health-related quality of life and one for mental health-related quality of life. Both composite scores were assessed at all three timepoints in this study. Internal consistency for the SF-12 was acceptable in our sample ($\alpha = .79$).

Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011). The AAQ-II is a 7-item measure of psychological inflexibility and experiential avoidance, the central theorized treatment targets in ACT. Items are rated on a 7-point scale ranging from 1 “never true” to 7 “always true.” The AAQ-II has been found to have adequate reliability and validity and has also been tested in primary care samples (McCracken & Velleman, 2010). The AAQ-II was used as a process measure at all assessment points in the study. Our sample showed good internal consistency for the AAQ-II ($\alpha = .88$).

Treatment Preferences. As we were testing a novel psychosocial intervention against the standard treatment approach for depression in primary care (i.e., antidepressants), a secondary aim of this study was to understand patient preferences for treatment and whether these changed after being exposed to *LifeStories*. Therefore, we

gave participants an adapted version of the General Help Seeking Questionnaire (GHSQ; Wilson, Deane, Ciarocchi, & Rickwood, 2005), which is a validated measure of help-seeking intentions from a variety of formal (e.g., psychologist, PCP) and informal (e.g., friends, family) supports. The likelihood of seeking treatment from a particular source is rated on a 7-point scale from 1 “extremely likely” to 7 “extremely unlikely.” The GHSQ was previously adapted for use in self-help studies (Levin et al., 2018) by adding options for self-guided/online treatment resources. In this study, we used the same adapted scale while additionally specifying that we are interested in participants’ likelihood of using these resources for depression treatment. The GHSQ was administered at baseline and posttreatment.

Treatment Utilization. At baseline, we asked participants which antidepressant medication(s) they are currently prescribed, their current dosage, and how long they have been taking this medication. We asked participants similar questions at posttreatment to assess other any changes in medication use during the treatment period. We additionally asked participants at posttreatment “are you planning to see a mental health specialist (i.e., contacted or made an appointment)?” consistent with one aim of *LifeStories* being to improve psychosocial treatment acceptability and utilization.

Qualitative feedback. At posttreatment, participants in the Med TAU+LS group additionally provided open-ended responses to four questions concerning their experience using *LifeStories*. Overall program feedback was asked through the questions “What did you enjoy most about *LifeStories*?” and “What did you enjoy least about *LifeStories*?” Barriers to using the program were assessed through the question “If you were unable to complete any of the *LifeStories* sessions, what was your biggest barrier?” Lastly, we

asked whether exposure to a novel ACT intervention influenced their perspective on depression generally through the question “How did using *LifeStories* change, if at all, how you think about your depression”?

Analytic Plan

An a priori power analyses was conducted in G*Power (Faul et al., 2007) to determine the appropriate sample size for the study. It was determined that a sample of 85 participants would allow for adequate statistical power (0.95) to detect a small-to-medium Cohen’s *d* effect size (0.20) in a multilevel modeling analysis with a baseline, midtreatment, and posttreatment timepoint. We recruited a final sample of 93 participants anticipating some dropout so that adequate power could still be ensured.

All quantitative analyses were conducted using R (R Core Team, 2015). First, rates of missing data were compared between the Med TAU and Med TAU+LS groups to determine if any differential attrition occurred. This was followed by conducting descriptive statistics on participant demographics and examining these for any baseline differences. Baseline results of outcome variables were also compared between the two groups. Next, rates of adherence to *LifeStories*, both self-reported and extracted from program usage data, were reviewed. Overall program satisfaction was reviewed and compared to established benchmarks.

The effect of the *LifeStories* intervention was tested on the clinical outcomes of depression, quality of life, and psychological flexibility. This was accomplished by fitting a series of multilevel models for each outcome using the full intent-to-treat sample with the `lmer()` function in R (Kuznetsova et al., 2017). This function determines the statistical

significance of model covariates using Satterthwaite approximations. For each outcome, the simplest model (i.e., null model with random intercepts only) was fitted first, followed by increasingly complex models (i.e., adding in random slopes for time, and finally adding a time by group interaction). Each model was compared against the simpler model that preceded it in terms of model fit. Estimated marginal means were examined for the best-fitting model on each outcome variable. For every outcome, the full time by group interaction with random intercepts at the participant level and random slopes for time was the best-fitting model.

For all multilevel analyses, maximum likelihood was used for all parameter estimates in models. This approach manages missing data by imposing distributional assumptions on variables with missing values until a set of parameters which maximizes the likelihood function is found (Grund et al., 2019). Maximum likelihood enables accurate modeling using every available datapoint even when observations at certain timepoints are missing, in contrast to listwise deletion which would exclude the entire participant if either midtreatment or posttreatment data was absent (Enders & Bandalos, 2001). This approach to missing data allows for accurate estimates of multilevel models even with levels of dropout as high as 75% (Newman, 2003).

To analyze help-seeking preferences, an initial null model was created with only time and random intercepts. Next, a time by condition interaction was added to the model. Since help-seeking preferences were only collected at two timepoints (baseline and posttreatment), random slopes could not be accurately modeled as the variance in slopes would be confounded with the residual variance (i.e., the total number of observations was less than the number of random effects). Therefore, the most complex

model that could be accurately fitted was the one containing the time by condition interaction and random intercepts. This model was compared against the null model on model fit indices. For all help-seeking preferences, the full model was the best-fitting and so is the model presented.

A preliminary test of the mediational model relating psychological flexibility and depression outcomes was also conducted. As described below, the *LifeStories* intervention did not have any significant effects on psychological flexibility compared to the Med TAU group according to multilevel models. For this reason, a full mediation model assessing the impact of psychological flexibility on changes in depression was not analyzed. Instead, correlations were tested between process and outcome variables as a preliminary test of the mediation model. Specifically, it was tested whether changes in psychological flexibility from baseline to midtreatment were correlated between changes in depression from midtreatment to posttreatment. If these two change scores were correlated, it would suggest that improvements in psychological flexibility in the first half of treatment were associated with improvements in depression in the second half of treatment, which is consistent with a theoretical ACT model of symptom change.

Finally, in coding qualitative program feedback, we followed the Checklist of Consolidated Criteria for Reporting Qualitative Research (COREQ; Tong et al., 2007). Qualitative feedback was collected via online self-report at posttreatment. The first author completed an initial review of all responses to qualitative questions. From this review, a list of several major and minor themes was derived, based on how often they came up. Next, a second review was completed in which themes with significant overlap were consolidated. Specialized qualitative data analysis software was not used given the

relatively small amount of data needing analysis. Representative quotations were chosen for both major and minor themes. Quotations were identified through anonymous participant numbers so that quotations from the same respondent were evident. Lastly, we examined the consistency between qualitative program feedback and quantitative measures of program satisfaction.

Results

Missing Data

Regarding study retention, 75.3% of participants completed the midtreatment assessment and 88.2% completed the posttreatment assessment. Differential attrition occurred at midtreatment between the two groups, with 61.7% of the Med TAU+LS group completing the midtreatment assessment compared to 89.1% of the Med TAU group ($\chi^2 = 7.98, p = .005$). At posttreatment, however, attrition did not differ significantly ($\chi^2 = 1.55, p = .21$), suggesting that by the end of the study adherence to surveys had evened out between the two groups.

Preliminary Results

Demographic variables were compared between the Med TAU+LS and Med TAU groups for potential differences. No significant differences were found between groups in age, gender, race, ethnicity, income, treatment history, or duration of antidepressant use (all $ps > .05$, see Table 4). Baseline differences were also compared on the three outcome variables and one process variable, with no significant differences detected between

groups (all $ps > .05$, see Table 4). All variables were analyzed for skewness and kurtosis at all three timepoints, and all approximated normality without requiring transformation.

Program Adherence and Satisfaction

For participants in the Med TAU+LS group, adherence to the *LifeStories* intervention was assessed. Data was extracted from the online database which hosted the program and included information on whether or not a participant completed each of the four modules. Overall, 34% of participants completed all four sessions of *LifeStories*, 14.9% finished three sessions, 14.9% finished two sessions 4.3% completed one session, and 31.9% did not finish any session of *LifeStories*. Program adherence was additionally captured via self-report, in which participants were asked at posttreatment to estimate how much of the within-session exercises and between-session homework assignments they completed. On average, participants reported completing 82.6% of within-session activities and 64.8% of between-session homework activities.

Satisfaction with *LifeStories* was assessed by providing participants the 10-item System Usability Scale at posttreatment. Among the 37 participants in the Med TAU+LS group who completed posttreatment, results yielded an average SUS score of 85.1 ($SD=15.6$). Across 500 studies using the SUS to measure program satisfaction, the average score was determined to be 68 (Sauro, 2011). This would place *LifeStories* above average in terms of perceived program usability. Furthermore, a score of 85.1 is within the top 10% of SUS scores from the same large sample, suggesting overall high satisfaction and perceived usability with the intervention.

Outcome Analyses

Between condition treatment effects were examined for depression, physical health-related quality of life, mental health-related-quality of life, and psychological flexibility (see Table 5 for descriptive statistics of each outcome variable by timepoint). Estimated marginal means and model fit indices for each outcome are presented in Table 6. For all four outcomes, significant main effects for time were found. Depression decreased by an average of 3.28 points on the PHQ-9 for each timepoint, indicating improved depression (see Figure 2). SF-12 scores measuring physical health-related quality of life decreased by an average of 1.21 points, suggesting a small decrease in quality of life in this domain. In contrast, mental health-related quality of life measured by the SF-12 improved by an average of 4.03 points per timepoint (see Figure 3). Psychological flexibility as measured by the AAQ-II improved by an average of 1.94 points per timepoint. These results suggest that over time, participants experienced improvements in depression, mental health-related quality of life, and psychological flexibility over time, regardless of study condition.

The two-way interaction of time by condition was significant only for mental health-related quality of life. Participants who received *LifeStories* improved by an average of 3.24 points more than those in the Med TAU condition ($p = .003$). This interaction was also examined in post hoc tests. Participants in the Med TAU+LS group saw medium within-group effect size changes from baseline to midtreatment ($d = 0.55$, 95% CI [0.07, 1.02]) and small effect size changes from midtreatment to posttreatment ($d = 0.31$, 95% CI [-0.19, 0.80]), both representing increases in quality of life. Those in the Med TAU group experienced a small increase in quality of life from baseline to

midtreatment ($d = 0.30$, 95% CI [-1.13, 0.73]) and a small decrease (i.e., worsening of quality of life) from midtreatment to posttreatment ($d = -0.15$, 95% CI [-0.60, 0.30]). Looking at between-condition comparisons, effect sizes were negligible between groups at midtreatment ($d = 0.08$, 95% CI [-0.40, 0.56]) but were medium at posttreatment, favoring the Med TAU+LS group ($d = -0.51$, 95% CI [-0.99, 0.04]). In sum, these results imply that participants in the Med TAU+LS group saw better gains in mental health-related quality of life compared to the Med TAU group, with the largest discrepancy being at the four-week mark (see Figure 3).

The interaction of time by condition was not statistically significant for any other outcomes, however there was an observed trend towards significance on the outcome of depression ($p = .101$), suggesting that participants in the Med TAU+LS group improved an average of 0.91 points on the PHQ-9 as compared to those in the Med TAU group. Post hoc tests for depression further indicated a large within-group effect size between baseline and midtreatment in the Med TAU+LS group ($d = -1.24$, 95% CI [-1.73, -0.72]) and a small effect size between midtreatment and posttreatment ($d = -0.24$, 95% CI [-0.74, 0.26]). Participants in the Med TAU group also indicated a large effect size between baseline and midtreatment ($d = -1.07$, 95% CI [-1.52, -0.61]) and a negligible effect from midtreatment to posttreatment ($d = 0.06$, 95% CI [-0.39, 0.51]). Between-group effect sizes for depression suggested a small effect at midtreatment ($d = 0.31$, 95% CI [-0.17, 0.80]) and a medium effect at posttreatment ($d = 0.60$, 95% CI [0.13, 1.07]), indicating lower depression for participants in the Med TAU+LS group at both timepoints. While these findings should be interpreted carefully due to lack of high statistical significance in the model, the observed statistical trend combined with effect sizes and confidence

intervals suggest that a significant time by condition effect may have been seen for depression with a larger sample size. Time by condition interactions were not significant for physical health-related quality of life ($p = .63$) or psychological flexibility ($p = .25$).

Considering that around 32% of participants in the Med TAU+LS group did not complete a single full session of *LifeStories*, an exploratory analysis was conducted in which only participants in the Med TAU+LS group who completed at least one session were included in multilevel models. A filtered dataset was created comprising the 32 participants in the Med TAU+LS group and all 46 participants in the Med TAU group. The same iterative process of creating increasingly complex models was conducted with data from the filtered set as it was for the full intent-to-treat sample. As in the full sample, the best-fitting model for each outcome was the model including the full time by group interaction. Results largely mirrored those from the full dataset, with significant main effects for time for all outcomes except physical health-related quality of life, and a significant time by condition effect for mental health-related quality of life only. Compared to the full sample analysis, there was not a trend towards significance for the outcome of depression ($p = .274$). A main effect for condition was detected for depression, indicating a difference between groups in PHQ-9 scores of 1.91 points on average across all timepoints when only treatment engagers were included ($p = .04$). As a whole, including only participants who engaged in treatment did not notably change the outcome models.

Lastly, an exploratory analysis was conducted to assess the possibility of a dosage effect for the *LifeStories* intervention. That is, whether the specific number of sessions completed was differentially associated with clinical trajectories in the Med TAU+LS

group. To test this, correlations were examined between the raw number of sessions completed (i.e., zero through four) and change scores between baseline and posttreatment for each outcome variable. A significant correlation was not found between sessions completed and changes in depression during treatment, $r(45) = -.28, p = .15$. No significant correlation was found either between sessions completed and changes in either mental health-related quality of life, $r(45) = -.25, p = .20$, or physical health-related quality of life, $r(45) = .18, p = .36$. Finally, no significant correlation was detected between number of sessions completed and changes in psychological flexibility, $r(45) = -.19, p = .33$. Taken together, the absence of significant correlation between number of sessions completed and changes in outcome measures suggests that a dosage effect was not present for individuals who used the *LifeStories* intervention.

Influence of Intervention on Help-Seeking Preferences

Descriptive statistics of help-seeking preferences by group are presented in Table 7. Additionally, estimated marginal means from multilevel models of changes in treatment preferences are presented in Table 8, divided by category of help-seeking.

Professional services. This category included sources of help for depression from medical or psychological professionals. A significant time by condition interaction was found for all professional services, with preferences for each option increasing between baseline and posttreatment in the Med TAU+LS group more so than the Med TAU group (see Figure 6). Participants in the Med TAU+LS group increased their likelihood of seeking help from a mental health professional (e.g., psychologist, social worker, or counselor) by an average of 1.03 points compared to the Med TAU group ($p = .011$).

According to post hoc tests, this was a medium effect between conditions ($d = -0.65$, 95% CI [-1.11, -0.19]). On average, those in the Med TAU+LS group moved from the “likely” range to between “likely” and “extremely likely” in regards to their likelihood of help-seeking. Participants in the Med TAU group, conversely, moved from the “likely” range to between “likely” and “unlikely.”

The likelihood of seeking help from a psychiatrist also increased by a mean 1.26 points more for participants in the Med TAU+LS group ($p = .005$), which was also a medium effect size in post hoc tests ($d = -0.54$, 95% CI [-0.99, -0.08]). For individuals in the Med TAU+LS group, their interest moved from between “unlikely” and “likely” to “likely.” However, participants in the Med TAU group experienced, on average, a decrease from “likely” to “unlikely.”

Regarding the likelihood of seeking depression help from a primary care provider, scores in the Med TAU+LS increased an average 0.76 points more compared to the Med TAU group ($p = .046$). This was a small-to-medium effect size according to post hoc testing ($d = -0.41$, 95% CI [-0.86, 0.04]). For the Med TAU+LS group, average reported likelihood remained within the “likely” range, whereas for the Med TAU group, average likelihood decreased from the “likely” range to between “likely” and “unlikely.”

Lastly, the likelihood of participants seeking help from a phone/crisis helpline increased by a mean 0.83 points greater for those in the Med TAU+LS group ($p = .031$), which constituted a small between conditions effect size ($d = -0.29$, 95% CI [-0.74, 0.16]). This effect corresponded with participants in the Med TAU+LS group remaining in the “unlikely” range for help-seeking, compared to those in the Med TAU group who experienced a decrease from between “unlikely” and “likely” to the “unlikely” range.

Self-help. The second group of sources for depression support comprised those delivered in a self-guided format, including self-help books, websites, and mobile apps. A significant time by condition interaction was found for the likelihood of using a self-help book for depression. Participants in the Med TAU+LS saw their likelihood of seeking support from this modality increase by an average of 0.81 points greater than the Med TAU group over the intervention period ($p = .022$). The between condition effect size was medium according to post hoc tests ($d = -0.67$, 95% CI [-1.13, -0.21]). For participants in the Med TAU+LS group, their interest in help-seeking remained in the “likely” range, whereas individuals in the Med TAU group decreased, on average from “likely” to between “likely” and “unlikely.”

Additionally, those in the Med TAU+LS group increased their likelihood of searching online for depression support an average 1.03 points more than the Med TAU group ($p = .021$). This was a medium-to-large effect according to post hoc tests ($d = -0.73$ [-1.19, -0.27]). On average, participants in the Med TAU+LS group moved from the “likely” range to between “likely” and “extremely likely,” compared to those in the Med TAU group moving from “likely” to between “likely” and “unlikely.” The time by condition effects for the likelihood of seeking help from a self-help website or mobile app were not significant, indicating that preferences for this source did not change differentially over time.

Informal or paraprofessional help. This category included potential sources of support for depression from one’s family, social circle, or paraprofessionals. The time by condition interaction was significant only for seeking help from a friend, with those in the Med TAU+LS group increasing their likelihood of getting support from this source an

average of 0.75 points more than the Med TAU group ($p = .041$). This was a small effect size according to post hoc tests ($d = -0.11$, 95% CI [-0.55, 0.34]). Among individuals in the Med TAU+LS group, the reported likelihood of help-seeking moved from the “unlikely” to “likely” range, whereas for those in the Med TAU group it remained between “unlikely” and “likely.”

There was not a significant time by condition interaction for changes in the likelihood of seeking help from other informal or paraprofessional sources of help. Lastly, participants did not differ over time according to group in their likelihood of refusing help for depression (i.e., “I would not seek help from anyone”).

Process of Change Analyses

As reported above, changes in psychological flexibility did not occur differentially by group. Therefore, a formal mediation model relating experimental condition to depression outcomes via changes in psychological flexibility was not created. As a preliminary test of the mediation model, however, correlations were examined between changes in psychological flexibility during the first half of treatment and changes in depression during the second half. No significant correlation was found between changes in psychological flexibility and depression in the Med TAU+LS group, $r(45) = -.17, p = .38$. No significant correlation was present either in the Med TAU group, $r(44) = -.13, p = .41$. Overall, these results suggest that while both psychological flexibility and depression improved over time in both groups, there was no significant association between the two. In other words, depression and psychological flexibility improved independently in our sample in both experimental conditions.

Changes in Treatment Utilization

We also collected information on treatment utilization at posttreatment and compared this to what was reported at baseline. Overall, there were minimal reported changes in antidepressant use. Two participants, both in the Med TAU group, reported stopping their medication. Six participants overall reported a change in the dose of their antidepressant over the study period, and one participant switched to using another antidepressant.

Data was also collected on participants' intentions to see a mental health provider at posttreatment. Overall, nine participants reported having plans to see a mental health provider by posttreatment (11.7%). Rates were nearly equal between groups, with four participants in the Med TAU+LS group (11.1%) and five in the Med TAU group (12.2%) reporting plans. Interestingly, while using *LifeStories* increased the reported likelihood of seeing a mental health professional for depression, an equally few number of participants reported making tangible plans to see a provider between groups.

Qualitative Program Feedback

Responses to open-ended questions about *LifeStories* from participants in the Med TAU+LS group were reviewed for major and minor themes to better understand user experiences with the intervention and areas for further refinement. The most common theme relating to positive aspects of *LifeStories* was a sense of connection to the video storytellers. One participant stated that "people were real and relatable" (770215), while another expressed "I loved the videos of people like me. I never find people who have

feelings like I do” (975511). One participant compared *LifeStories* positively to other self-help programs, stating “It involved real people and not just another app like all the others” (584676). Many people noted the diversity of personal stories, for instance one participant who wrote “even though the participants in *LifeStories* came from very different backgrounds from me and each other, I felt like I could relate to all of them” (897308). Users also described how *LifeStories* helped them to learn new coping strategies for depression, with one highlighting “the balance between talking about ACT principles and hearing how they can actually apply in living with depression” (239404). Another reported liking the “personal, truthful stories discussing how some approaches I had not previously considered could apply to me and help me” (342195). Some participants noted the usefulness of interactive exercises, such as one who commented “I appreciated the moments where I was prompted to stop and consider things like my values and the way I handle emotions” (664185).

Participants described a variety of *LifeStories* features which they found to be unfavorable. Some users believed that sessions ran too long or were redundant. For instance, one commented “I sometimes struggled watching the whole video in one sitting” (557069). Another user expressed that the program “covered most of the topics that I have already researched and tried” (943195). In contrast, other participants felt that *LifeStories* was too brief or simplistic. One user stated that “stories were not in depth enough” and that “short segments were digestible but lacked emotional impact” (770215). Similarly, another participant reflected that “it left me feeling a little unfulfilled and wondering more about these people’s stories” (463548). Some users also expressed that they found certain stories unrelatable, for example one individual reflected that

LifeStories “made me feel like my depression should be coming from trauma or abuse when I don’t think mine is” (487118). Some critical feedback was also directed at the online interface of *LifeStories*. One user observed that “the actual act of navigating to a website frequently was my downfall with it. I think I might have gotten more into it if I had it as a shortcut on my phone or as an app” (933191). The two major factors that participants identified as barriers to completing *LifeStories* were time constraints and motivation. One participant reflected that the program required “too much time investment” (612416), while another expressed that they “regularly forgot about it” (557069).

Participants also provided feedback on how *LifeStories* influenced their perspective on depression more generally. While a number of participants wrote that using the program did not significantly change their view, others reported connecting to several ACT-related concepts. Many commented that *LifeStories* helped them see depression and other emotional states as impermanent, with one user stating that the videos “helped me see that my depression waxes and wanes, that this is normal, and that nothing is likely permanent” (185024). Users also connected to the idea of psychological acceptance, with one participant saying, “perhaps my depression has been with me for most of my life – maybe I do need to think of it as a companion, as part of me, rather than as something I’ll eventually escape” (664185).

Many participants reported having greater present moment awareness, with one stating that *LifeStories* encouraged them “to enjoy the now” (331880), and another expressing that the program “gave me more of a handle on grounding practices” (905922). Lastly, several users reported coming to the realization that they are not alone

in their struggles with depression. One participant commented that the program showed them how “others learned from life, and I can learn from them, it was very helpful in giving me much-needed perspective” (933191). Another expressed “I wish I had an online support group with the people on *LifeStories*” (960172).

Discussion

The aim of this randomized trial was to determine if a storytelling-based ACT program, *LifeStories*, is effective as an adjunctive treatment for primary care patients taking antidepressants. Specifically, we sought to understand whether *LifeStories* is an efficacious additional treatment for depression by assessing changes in depression severity, quality of life, and psychological inflexibility. We also aimed to clarify if *LifeStories* can function as a “doorway” to more intensive and specialized depression treatments, such as working with a therapist or using additional self-help, by examining changes in treatment preferences. This would be important in showing that *LifeStories* serves as a brief and engaging introduction to ACT that can then be expanded upon for the long-term management of depression for primary care patients. Given the low rate of primary care patients initiating psychosocial treatments for depression despite their demonstrated effectiveness (Waitzfelder et al., 2018), strategies are needed to promote greater adaptation of these interventions.

Feasibility and Acceptability of *LifeStories* among Primary Care Patients taking Antidepressant Medication

Results indicated that it was feasible to deliver *LifeStories* as a fully online, self-guided intervention for primary care patients. *LifeStories* users rated the program favorably on usability. This is promising data, suggesting that a series of therapeutic narrative videos can be effectively adapted to an online format with accompanying self-guided exercises. This proof-of-concept is particularly relevant to the development of self-guided ACT interventions. Two important aspects of ACT are that it draws on shared human experiences of suffering and that it is delivered in an experiential manner (Walser, 2019). These key features are emphasized by combining real patient narratives with interactive exercises to teach therapeutic coping skills.

These qualities of *LifeStories* were also highlighted in the qualitative program feedback that was collected. Several participants expressed that the videos felt relatable while also reflecting a diversity of backgrounds and personal experiences of depression. The sense of connection with the video storytellers was felt as genuine by study participants, with one even imagining the storytellers as a kind of “support group” for depression. Relatability and connection to *LifeStories* may not only promote greater engagement with the program but also target important aspects of the lived experience of depression through unique narrative mechanisms (Davis et al., 2021).

Critical program feedback also highlighted ways that *LifeStories* or similar narrative-based interventions could increase user engagement. *LifeStories* included a large amount of video content, almost three hours total not including supplemental videos. For some users, the volume of content made it difficult to sustain interest over time. This is a useful insight for the development of self-guided narrative interventions. Without adjunctive means of promoting engagement like therapist support or coaching,

interventions delivered in medical settings may benefit from brevity and conciseness. Narrative interventions could also be designed more flexibly, so that users could select from a set of possible stories or thematic modules based on their specific interests or needs.

Another indicator that *LifeStories* may have included too much content than was feasible for patients to fully engage with were our observed adherence rates. Just over a third of participants completed all four modules of *LifeStories*, and nearly the same proportion did not fully complete any module. In a trial comparing two online CBT interventions for depressed primary care patients specifically, the median number of completed modules was one out of six or eight total modules, depending on the program used (Gilbody et al., 2015). We observed similarly low adherence rates in our sample of primary care patients who were asked to complete an online program comprising four modules. In response to low adherence rates for online depression interventions, some studies have tested the impact of adding guided support which has shown to promote both adherence and faster improvements in depression (Bur et al., 2022). While we included twice-weekly automated email prompts for participants to access *LifeStories* modules, this may have been insufficient to maintain engagement over the four-week period. Furthermore, our overall low adherence rates may have impacted results by not fully capturing the impact that *LifeStories* had as an adjunctive intervention compared to antidepressants alone.

Effects of *LifeStories* on Depression and Quality of Life

Participants in both the *LifeStories* and medication treatment as usual group experienced similar reductions in depression over time. However, a statistical trend was observed that suggested participants who used *LifeStories* may have seen greater improvement in depression if the sample size was larger. Also, differential effects seemed to occur between the midtreatment and posttreatment timepoints, indicating the possibility of a delayed effect for the *LifeStories* intervention that may ultimately lead to better outcomes in depression severity over time.

Although the impact of *LifeStories* on depression symptoms was inconclusive, its impact on quality of life was clear and meaningful. Specifically, mental health-related quality of life improved significantly for individuals who used *LifeStories* in addition to their antidepressant treatment. This finding adds to a growing body of evidence that psychosocial treatments for depression can produce meaningful improvements in quality of life (Kolovos et al., 2018), whereas the same cannot be said for antidepressants. A recent large analysis of healthcare records in the United States found no effect of antidepressants on mental health-related quality of life over a two-year period (Almohammed et al., 2022). While the current study only collected data over the period of a month, our results fit within the broader observed trend that antidepressants alone, which is the standard of treatment in primary care, do not adequately improve patient quality of life. This is a critical observation since a key aim of any health intervention should be on improving quality of life (World Health Organization, 2012). Our results suggest that even low-intensity and self-administered interventions may effectively improve patient quality of life compared to the standard antidepressant treatment in primary care.

***LifeStories* as a “Doorway” to other Psychosocial Treatments**

An important secondary aim of the study was to determine if *LifeStories* could increase willingness to pursue additional, more intensive psychosocial treatments. As the intervention was designed to be brief and accessible, our intention was not to provide a “complete” treatment for depression, or one meant to replace antidepressant use. Rather, our goal was to bolster the standard treatment in primary care by teaching basic psychological flexibility skills for depression in addition to providing patients with a “doorway” to further support if desired. We found that participants who used *LifeStories* reported a general increase in their likelihood of seeking help for depression from a variety of sources, particularly specialized mental health practitioners. Individuals using only antidepressants, in contrast, reported a similar or decreased likelihood of help-seeking from professional sources from the beginning to the end of the study period.

Interestingly, *LifeStories* also seemed to promote willingness to seek depression support from a primary care provider. As our entire sample was prescribed an antidepressant from their primary care provider, they were already engaged in depression treatment from this source to an extent. What this finding may have captured, then, is an increased motivation to pursue additional support for depression in primary care. This could include consulting a doctor about their medication if they are dissatisfied with it or inquiring about alternative treatment options for depression. Patients’ comfort in discussing concerns about mental health with a primary care provider is often low (Heinz et al., 2021). That *LifeStories* may have helped to address some of these barriers to treatment-seeking is a promising sign.

Lastly, we did not observe any meaningful changes in other measures of treatment utilization besides self-reported interest. A small number of participants in both groups reported making actual plans to see a specialized mental health provider at the four-week posttreatment assessment. Future iterations of *LifeStories* or similar narrative interventions could incorporate more direct ways of promoting treatment utilization, such as a tool for participants to search for providers in their area. Similarly, few study participants reported making changes or terminating their antidepressant treatment over the study period. Given that all our participants reported at least moderate depression and were looking for further help, many of them would presumably benefit from consulting with their primary care provider about whether adjustments should be made to their medication or alternate treatments explored to better meet their goals. One possibility would be for self-guided programs targeting primary care patients such as *LifeStories* to specifically encourage users to consult with their doctor if they are not satisfied with their current antidepressant treatment.

Effects of *LifeStories* on Psychological Inflexibility

A final goal of the study was to assess whether *LifeStories* effectively targeted psychological inflexibility compared to antidepressant treatment alone, and whether this central mechanism in ACT corresponded with changes in depression. While psychological inflexibility decreased over time in both groups, there was no indication that individuals using *LifeStories* improved at a greater rate. Similarly, there was no indication that later changes in depression over time correlated with early changes in psychological inflexibility. This would seemingly go against the model of ACT treating

depression through reductions in psychological inflexibility, which has been found in other online self-help studies (Fledderus et al., 2013).

Few previous studies have assessed the role of psychological inflexibility in individuals taking antidepressants, and our results suggest that this construct could function differently in this particular population. One prior study did code therapy sessions for psychological flexibility among primary care patients who were receiving adjunctive CBT after not responding to an initial antidepressant treatment (Yasinski et al., 2020). Indications of psychological flexibility within sessions corresponded with lower depression at a 12-month follow-up. It is possible that the four-week follow-up period in our study was inadequate for detecting meaningful changes in psychological inflexibility or the impact of this on depression symptoms. However, a four-session ACT intervention delivered in-person did produce meaningful improvements in psychological flexibility compared to a waitlist (Kohtala et al., 2015), though this sample had comparatively low use of medication.

Additionally, several previous studies have questioned the construct validity of the AAQ-II in measuring psychological flexibility and suggested that it actually captures other factors such as general distress, negative affect, and neuroticism (Rochefort et al., 2018; Tyndall et al., 2019; Wolgast, 2014). Research has also indicated that the AAQ-II is less sensitive to the effects of intervention than some alternative measures of psychological flexibility (Benoy et al., 2019). In sum, it is possible that we did not observe expected patterns in psychological flexibility in our study due to one or more of these assessment-related issues.

Our study showed that a narrative-based ACT intervention was feasible and acceptable for primary care patients taking antidepressants. It would be valuable to understand whether psychological inflexibility is an important treatment target with this approach or if other therapeutic processes are more relevant to this specific patient population. These may include other ACT mechanisms not fully measured with the AAQ-II such as personal values, or mechanisms consistent with a more traditional CBT for depression model such as cognitive restructuring (Gómez Penedo et al., 2020). It is also possible that as a narrative-based intervention, *LifeStories* could have engaged processes of change in our sample that are less relevant to standard psychosocial interventions. These could have included narrative transportation or a feeling of connection with the video storytellers (Davis et al., 2021). It would be valuable to test empirically the specific routes through which narrative interventions might impact on psychological health.

Limitations

Several limitations should be noted which potentially limit the applicability of these study findings to primary care patients taking antidepressants. We recruited our study sample through broad public advertising as opposed to direct referrals from primary care providers. This was decided due to past difficulties in engaging local primary care providers in psychosocial research efforts. Establishing a presence in local primary care offices was additionally challenging due to Covid-19 restrictions in medical centers during the recruitment period. While our broad-based recruitment method allowed us to efficiently recruit our target sample, it gave us less control over the type of primary care

patient we enrolled. For example, we did not assess how frequently our participants met with their primary care provider or discussed depression treatment. There was likely a high amount of variation in our sample on these treatment factors. Similarly, it would be informative to test how *LifeStories* functions when it is given alongside an initial course of antidepressant treatment instead of at varying stages of treatment.

Our assessment period for the study was only one month. While this allowed us to make inferences about the short-term effectiveness of *LifeStories*, we were not able to gain insights into long-term outcomes. Provided that much of our sample reported using antidepressants for long periods of time, it would be valuable to assess longitudinal outcomes for an adjunctive psychosocial intervention. In particular, it would be useful to assess utilization of other psychological services over time. We observed a significant difference in users of *LifeStories* becoming more interested in various professional treatment options compared to those who only took antidepressants. It should be noted that average changes in help seeking across sources, while often significant between conditions, were generally small, typically comprising a movement from one anchor point to an adjacent one.

Relatedly, It would be important to know whether patients actively pursued additional services or if, conversely, their increased interest did not translate to actual treatment-seeking. Previous research has found significant correlations between indicated interest and reported actual help-seeking behavior across several sources (Wilson et al., 2005). Clarifying what factors may influence the path from exposure to a novel psychosocial intervention such as *LifeStories* and utilization of further clinical services is essential.

The sample in our study was primarily non-Hispanic white and does not reflect the diversity of primary care patients seeking treatment for depression. Recruiting more diverse patients samples would help clarify whether *LifeStories* is helpful for a broad swath of individuals, especially those who encounter systemic barriers to receiving adequate psychological support in primary care (Sanchez, 2019). Storytelling-based interventions possess an inherently humanizing quality and highlight the value of individual differences. Therefore, they should be tested with diverse patient groups to determine whether these intentions translate to efficacious outcomes. It is worth noting, however, that *LifeStories* was developed in a region of the United States (New England) that was linguistically, culturally, and politically different from the region where the majority of participants in this study were recruited from (Mountain West). We did not receive any program feedback suggesting that our participants had trouble relating to the video storytellers based on these factors. This is an encouraging finding and potentially speaks to the universality of narrative forms.

Conclusion

Our study showed that a storytelling-based ACT intervention improved mental health-related quality of life in a sample of primary care patients taking antidepressants while also promoting interest in additional specialized care for depression. These changes were significant compared to individuals who were only taking antidepressants, the standard treatment approach for depression in primary care. We did not observe significant group differences in trajectories of depression severity or psychological inflexibility. Further research should explore if *LifeStories* or other storytelling-based

interventions produce meaningful improvements in these outcomes long-term compared to antidepressants.

The fact that *LifeStories* improved quality of life compared to antidepressants alone is a promising finding. Quality of life is an important outcome in depression treatments and should not be eclipsed by a focus on depression symptomatology (McKnight & Kashdan, 2009). Especially considering that the prevailing biomedical model in primary care is oriented towards symptomatology (Primary Care Reports, 2021), it is significant that we were able to improve patient quality of life in this setting. Promoting meaningful life engagement over reduction of symptoms is also consistent with the ACT theoretical model. Our findings demonstrate that a brief, narrative-based ACT intervention can successfully impact quality of life even in a context where psychosocial treatments are not the standard.

Finally, our finding that *LifeStories* promoted interest in other specialized treatment options is significant. Many barriers persist for patients seeking relief from depression (Chekroud et al., 2018). Our study shows that exposure to a brief and engaging narrative intervention can potentially act as a “doorway” for primary care patients into appropriate longer-term interventions. While promoting interest in various treatment resources is only a first step, it is a worthwhile one. Primary care patients with depression may not be aware of specialized, evidence-based treatments such as ACT. *LifeStories* may have increased knowledge of behavioral treatments of depression along with a willingness to pursue them, through hearing other patients’ real stories of implementing coping skills.

CHAPTER IV

GENERAL DISCUSSION

Modern CBTs, including ACT, have brought healing and hope to countless individuals. At the same time, there remain important problem areas where CBTs have struggled to make an impact. In the development and testing of CBTs, it is important to consider not only specific treatment components and mechanisms, but the overarching manner through which interventions are delivered. In the history of CBTs, a greater emphasis has been placed on matching protocols to specific clinical syndromes as opposed to broader processes relevant to psychological health (Hayes et al., 2013). This focus has potentially stymied innovations in how CBTs are delivered as a whole. Thinking creatively about how to deliver CBTs could bring the benefits of these empirically-supported treatments to larger and more diverse groups of people.

Storytelling and clinical psychology have developed independently, but there is ripe opportunity for innovation at the confluence of these practices (Meier, 2012). Few human behaviors are as old as storytelling (Brown, 2004). There is vast diversity in forms of storytelling across time, place, and culture. A commonality across all forms of storytelling, however, is their ability to immerse, engage, and inspire in ways that other forms of human language cannot. Stories can be appreciated on their own for these reasons and do not necessarily have to possess other benefits to be of value. At the same time, psychologists have drawn upon the uniqueness of stories to promote mental wellbeing in various ways. This has occurred through the development of entire interventions based in storytelling principles, such as narrative therapy (White et al., 1990), as well as the integration of narrative components to varying degrees into other

schools of treatment (Meier, 2012). Historically, CBTs have featured less use of narrative techniques and tend to be delivered in didactic formats. A potential missed opportunity exists by not leveraging the universal appeal of storytelling to improve the delivery of modern CBTs.

Among modern CBTs, ACT stands as an intervention for which narrative methods could offer special opportunities for innovation. There is theoretical alignment between ACT and storytelling practices (Davis et al., 2021). RFT, the basic behavioral science underlying ACT, has revealed several key qualities of human language and cognition. While initially examined in the context of psychological health, core features of RFT also have conceptual relevance to aspects of storytelling.

The property of coherence explains how symbolic relations are established in a shared relational network (Villatte et al., 2015). “Functional” coherence means that stimuli are associated in a manner that promotes progress towards some established goal (e.g., a behavioral commitment derived from one’s personal values). We are often drawn to stories that are quite incoherent, for instance those containing unexpected plot twists or characters with contradictory personalities. Interventions that help someone view events in their social and emotional worlds as functionally coherent could help them to participate more fully in meaningful parts of their life. Incorporating storytelling into clinical interventions could help promote this sense of coherence.

Stories also demand a great deal of perspective taking as we follow the actions of various characters. RFT has shown how flexible perspective taking leads to greater behavioral variability (McHugh et al., 2019). This is accomplished by learning to view thoughts and concepts *about* ourselves as distinct from *ourselves*. Experiencing stories and

taking multiple perspectives may help bolster our flexible perspective taking skills. As perspective taking skills have been connected to various clinically-relevant processes (McHugh & Stewart, 2012), there is reason to more fully integrate them into treatments. Storytelling is a clear way of doing so.

Lastly, RFT has demonstrated that psychological qualities of stimuli are influenced by relational cues like “greater than” and “less than.” Responses to stimuli can be “transformed” through their participation in these relations (Hughes & Barnes-Holmes, 2015). In hearing or viewing stories we have particular emotional responses that may connect to our own lived experience through similar relational networks. Psychological interventions such as ACT have already drawn from these theoretical processes in developing theories of change and treatment strategies (Hayes et al., 2013). Understanding how narratives could serve similar functions, however, potentially opens the door for more individuals to benefit from these principles.

The theory that storytelling can help promote mental wellbeing is worthy of further examination. Modern CBTs such as ACT are very popular interventions used in a variety of contexts for numerous clinical presentations (Gloster et al., 2020). As these treatments are further disseminated, it is worth considering the ways in which they are delivered. For many patients, traditional psychotherapy is effective. For others, self-guided books, websites, or apps may provide adequate support (Cavanaugh et al., 2014). There likely exist swaths of patients, however, that these common methods of delivering care do not adequately reach. Some may be unwilling to use traditional mental health services because of inconvenience or costs (Chekroud et al., 2018). Others may face more personal barriers such as stigmatization or the fear that services will not be responsive to

their cultural identities (Sanchez et al., 2019). An appropriate response to these systemic issues is considering how to deliver treatments in a manner that is inclusive and engaging to diverse groups of clients. Connecting with stories that have therapeutic value could help patients who are less responsive to more traditional, didactic, or clinical methods of delivering interventions.

To test this theory on a very practical problem, a narrative-based ACT intervention (*LifeStories*) was given to primary care patients receiving antidepressant medication as their only treatment for depression. More individuals are treated for depression in primary care than in any specialized mental health setting (Mojtabai & Olfson, 2008), suggesting this to be a large population for whom suffering is widespread. This patient population also represents a group for whom psychosocial interventions are underutilized (Waitzfelder et al., 2018). Moreover, the prevalent use of antidepressants in this treatment setting does not produce reliably positive patient outcomes (Fournier et al., 2010; Almohammad et al., 2022). When antidepressants are prescribed to someone seeking help from a primary care provider, there is a good chance that person will soon discontinue the medication (Larson et al., 2022). This is a signal that primary care patients are desiring more varied and sustainable treatment options than they are currently given. We intended to see whether using a narrative approach to depression treatment could offer relief to patients while also directing them to sustainable, nonpharmacological options for care.

The results of our trial supported this narrative approach. Compared to patients only taking antidepressants, those given *LifeStories* as an additive treatment experienced greater gains in mental health-related quality of life. Using *LifeStories* additionally

increased patients' interest in continuing treatment with specialized mental health resources, such as therapists and psychiatrists. This suggests that combining ACT with a storytelling approach can itself improve a key clinical outcome while also promoting interest in resources that can potentially sustain and continue these gains beyond use of the program itself. We did not find *LifeStories* to have a significant effect on depression severity compared to the antidepressant group. Future studies of narrative-based treatments in primary care can examine longitudinal outcomes to see how they compare against antidepressants on this metric. Similarly, it should be evaluated which therapeutic mechanisms are most relevant for this patient group and this narrative treatment approach. We found that psychological inflexibility, a commonly assessed process in ACT, was unrelated to depression outcomes in our sample. Overall, our findings show that integrating storytelling into evidence-based CBTs can lead to measurable and meaningful patient outcomes.

Showing that *LifeStories* was effective in our randomized trial is an important step towards using storytelling to solve important clinical problems. Specifically, integrating narrative delivery methods with evidence-based CBTs could help bring these treatments to patient populations for whom they are traditionally less accessible. Primary care patients are a prime example. This is not only because of the lack of psychosocial resources in this setting but also because of its history of using pharmacological approaches alone to address mental health (Park & Zarate, 2019). Whatever one's view is on the utility of the biomedical model to clinical psychology, it is obvious that many patients need more varied options for care that reflect their individual needs (Hayes et al., 2019). Seeing the benefits of storytelling, a practice that has developed alongside

humanity for millennia, is a reminder that looking to the past is a sometimes necessary part of a progressive science.

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TABLES

Table 1

Core principles of relational frame theory relevant to storytelling

	<i>Concept</i>	<i>Relevance to Storytelling</i>
<i>Functional coherence</i>	<ul style="list-style-type: none"> ● The building of symbolic relations within a shared (coherent) relational network ● Establishing coherence allows mutual and combinatorial entailment to occur between stimuli in a network ● Some forms of coherence can be maladaptive (e.g., psychological rigidity based on social coherence) ● Functional coherence is the relating of stimuli in a network that promotes pragmatic movement towards given goals 	<ul style="list-style-type: none"> ● Stories form a relational network themselves, in which elements such as character, setting, and plot cohere with one another through a shared “narrative world” ● Engaging with stories may help individuals to frame their own experiences in a coherent way ● Choosing valued directions in one’s “life story” may promote functional coherence of ambiguous or unwanted internal experiences
<i>Perspective taking</i>	<ul style="list-style-type: none"> ● One’s awareness of their own perspective is comprised of the deictic relations of I–YOU, HERE–THERE, and NOW–THEN ● Perceiving self-concepts or evaluations as located HERE and NOW can result in fusion and behavioral rigidity ● Viewing self-content as located THERE and THEN, with the self located HERE and NOW, promotes more flexible patterns of behavior 	<ul style="list-style-type: none"> ● Stories, compared to other forms of language, demand a notable amount of perspective taking ● Engaging with the perspectives of characters within a story may help build perspective taking repertoires ● Assigning story-like qualities to one’s own life experiences may promote a healthier sense of self by viewing content as located THERE and THEN
<i>Transformation of stimulus function</i>	<ul style="list-style-type: none"> ● Psychological qualities can travel across relations in a given network ● These qualities can be influenced by relations such as “greater than/less than,” such that stimuli can become more aversive solely based on their relational qualities ● These “transformations” allow previously non-threatening stimuli to acquire psychological impact 	<ul style="list-style-type: none"> ● Stories utilize “narrative discourse,” or the communication of ideas between story and listener ● Narrative discourse allows listeners to relate elements of a story to their own experience ● Psychological qualities present in a story may subsequently transfer to how personal life experiences are viewed

Table 2

*Examples of storytelling interventions**Examples of published ACT-based protocols*

-
- ***LifeStories***, a self-help video intervention for depression featuring individuals sharing ACT-based coping skills, has been studied in an open trial (Gaudiano et al., 2017) and a pilot randomized controlled trial (Gaudiano et al., 2020). *LifeStories* was developed by recruiting community members who shared their personal experiences using ACT strategies, and was split into four episodes centered around themes such as acceptance, values, and mindfulness in the management of depression.
 - ***Superhero Therapy*** is a self-help intervention published in a graphic novel format (Scarlet, 2016) teaching general mental health coping skills for an adolescent audience. Superhero characters guide readers through various ACT processes, such as developing a “superhero self” (a version of self-as-context adapted for an adolescent audience). *Superhero Therapy* has yet to be empirically evaluated.

Examples of other interventions utilizing storytelling to facilitate behavior change

<i>Topic area</i>	<i>Targeted issues and relevant publications</i>
<i>Physical health conditions (for a review, see Lipsey et al., 2020)</i>	<ul style="list-style-type: none"> ● Hypertension (Houston et al., 2017) ● Cancer screening adherence (Kreuter et al., 2007) ● Physical activity promotion (Saksono & Parker, 2017) ● Chronic disease management (Cangelosi & Sorrell, 2008; Gucciardi et al., 2019)
<i>Mental health conditions</i>	<ul style="list-style-type: none"> ● Depression/anxiety in adolescents (Brosnan et al., 2006) ● Noncompliant behavior in children (Painter et al., 1999) ● Exposure to domestic violence (Anderson & Wallace, 2015) ● Serious mental illness (Roe et al., 2010) ● Relationship functioning (Rogge et al., 2014)
<i>Health disparities</i>	<ul style="list-style-type: none"> ● Hypertension among African-Americans (Houston et al., 2011) ● Cancer screening in Latina and Chamorro women (Larkey et al., 2009; Manglona et al., 2010) ● Diabetes management in refugee communities (Njeru et al., 2015) ● HIV/AIDS prevention for individuals in Ghana (Panford et al., 2001) ● Mental wellbeing in Native Alaskan youth (Wexler et al., 2013) ● Victims of gendered violence in Afghanistan (Mannell et al., 2018)

Table 3*Recommendations for using storytelling in CBS interventions*

	<i>Principles</i>	<i>Methods</i>
<i>Case conceptualization</i>	<ul style="list-style-type: none"> ● Importance of childhood environment in developing sense of self (e.g., distinction of <i>I</i> and <i>others</i>) ● Emergence and maintenance of self-stories ● Impact of self-stories on life functioning (e.g., experiential avoidance) 	<ul style="list-style-type: none"> ● Identifying relevant self-stories and associated behavioral patterns in initial case formulation
<i>In-person psychotherapy</i>	<ul style="list-style-type: none"> ● Clinical interactions as demonstrations of narrative principles (e.g., perspective-taking, deictic relational responding) ● Experiential exercises help shift perspectives or “rewrite” client narratives 	<ul style="list-style-type: none"> ● Coordinating therapist and client deictic “I” to explore and re-frame client narratives ● Facilitating expression and contextualization of client narratives through storytelling exercises (e.g., writing, art, drama)
<i>Group psychotherapy</i>	<ul style="list-style-type: none"> ● Group storytelling can facilitate contact with “universal narratives” (e.g., the problem of control) ● Storytelling may help build connections and destigmatization among marginalized patient groups 	<ul style="list-style-type: none"> ● Promoting the sharing of personal narratives throughout group treatment ● Integrating experiential narrative exercises such as writing or creative expression
<i>Self-help interventions</i>	<ul style="list-style-type: none"> ● Learning and retention of therapeutic principles may be enhanced through narrative media ● Accessibility of self-help content can be broadened through the universal language of storytelling 	<ul style="list-style-type: none"> ● Creating story-based self-help resources ● Utilizing multimedia to bring therapeutic narratives to life (e.g., video streaming, illustration) ● Involving community members to contribute and provide feedback on personal narratives to create culturally-relevant interventions

Table 4*Baseline comparisons of demographic, treatment history, and outcome variables*

	Full sample (n=93) M(SD)/%	Med TAU+LS group (n=47) M(SD)/%	Med TAU group (n=46) M(SD)/%	Group comparison at baseline (one-way ANOVA/chi-square)
Demographics				
Age	44.9 (14.3)	45.5 (15.4)	44.3 (13.2)	F(1,91) = 0.17, p = .69
Gender	84.9% female 12.9% male	87.2% female 10.6% male	82.6% female 15.2% male	$\chi^2 = 0.44$, p = .80
Race	2.2% nonbinary 86.0% white 6.5% Asian 5.4% multiracial 1.1% Black 1.1% other	2.1% nonbinary 83% white 8.5% multiracial 6.4% Asian 2.1% other	2.2% nonbinary 89.1% white 6.5% Asian 2.2% Black 2.2% multiracial	$\chi^2 = 3.84$, p = .43
Ethnicity	90.3% not Hispanic/Latinx 9.7% Hispanic/Latinx	87.2% not Hispanic/Latinx 12.8% Hispanic/Latinx	93.5% not Hispanic/Latinx 6.5% Hispanic/Latinx	$\chi^2 = 0.01$, p = .98
Median household income	\$60,000-79,999	\$60,000-79,999	\$60,000-79,999	$\chi^2 = 4.70$, p = .58
Treatment history				
Previous outpatient treatment	84.9% yes 15.1% no	87.2% yes 12.8% no	82.6% yes 17.4%	$\chi^2 = 0.11$, p = .74
Previous inpatient treatment	20.4% yes 79.6% no	17.0% yes 83.0% no	23.9% yes 76.1% no	$\chi^2 = 0.32$, p = .57
Previous self-help use	69.9% yes 30.1% no	72.3% yes 27.7% no	67.4% yes 32.6% no	$\chi^2 = 0.09$, p = .77
Longest time taking antidepressants	4.3% 1-3 months 6.5% 3-6 months 12.9% 6 months-1 year 10.8% 1-2 years 16.1% 2-3 years 4.3% 3-4 years 4.3% 4-5 years 40.9% longer than 5 years	2.1% 1-3 months 2.1% 3-6 months 17.0% 6 months-1 year 12.8% 1-2 years 14.9% 2-3 years 2.1% 3-4 years 6.4% 4-5 years 42.6% longer than 5 years	6.5% 1-3 months 10.9% 3-6 months 8.7% 6 months-1 year 8.7% 1-2 years 17.4% 2-3 years 6.5% 3-4 years 2.2% 4-5 years 39.1% longer than 5 years	$\chi^2 = 7.56$, p = .37
Outcome variables				
PHQ-9	15.7 (4.2)	15.1 (4.1)	16.2 (4.3)	F(1,91) = 1.74, p = .19
SF-Physical	45.8 (9.2)	46.2 (8.8)	45.3 (9.8)	F(1,91) = 0.23, p = .63
SF-Mental	25.9 (8.8)	25.1 (9.1)	26.8 (8.4)	F(1,91) = 0.79, p = .38
AAQ-II	30.6 (7.5)	31.2 (7.5)	30.0 (7.6)	F(1,91) = 0.64, p = .42

Note. PHQ-9 = Patient Health Questionnaire-9; SF-Physical = 12-Item Short Form Health Survey—physical health composite score; SF-Mental = 12-Item Short Form Health Survey—mental health composite score; AAQ-II = Acceptance and Action Questionnaire-II

Table 5*Descriptive statistics of outcome variables by condition at each timepoint*

	Med TAU+LS group (n=47) M(SD)		
	BL	MT	PT
PHQ-9	15.1 (4.1)	9.8 (4.7)	8.7 (4.5)
SF-Physical	46.2 (8.8)	45.1 (8.6)	43.7 (8.1)
SF-Mental	25.1 (9.1)	30.1 (9.2)	33.4 (12.0)
AAQ-II	31.2 (7.5)	27.9 (7.6)	28.1 (6.6)
	Med TAU group (n=46) M(SD)		
	BL	MT	PT
PHQ-9	16.2 (4.3)	11.3 (4.9)	11.6 (5.1)
SF-Physical	45.3 (9.8)	43.6 (9.9)	42.3 (10.2)
SF-Mental	26.8 (8.4)	29.4 (8.8)	28.1 (8.7)
AAQ-II	30.0 (7.6)	27.7 (7.5)	27.8 (7.5)

Note. BL = baseline; MT= midtreatment; PT = posttreatment; FU = follow-up

Table 6

Estimated marginal means with 95% CI of best-fitting MLMs for outcome variables in full intent-to-treat sample (n=93)

	PHQ-9	SF-Physical	SF-Mental	AAQ-II
Intercept	14.66*** [13.46, 15.86]	46.08*** [43.48, 48.68]	25.28*** [22.82, 27.75]	30.79*** [28.68, 32.90]
Timepoint	-3.28*** [-4.05, -2.50]	-1.21* [-2.26, -0.15]	4.03*** [2.52, 5.56]	-1.94*** [-2.83, -1.03]
Condition ¹	0.80 [-0.89, 2.49]	-1.04 [-4.74, 2.66]	2.07 [-1.42, 5.55]	-1.14 [-4.13, 1.85]
Timepoint x condition ¹	0.91 [†] [-0.17, 1.98]	-0.36 [-1.82, 1.10]	-3.24** [-5.35, -1.13]	0.74 [-0.52, 1.98]
BIC	1448.35	1651.82	1744.35	1591.85
Number of observations	245	244	244	244
Number of participants	93	93	93	93

[†]p=.10, *p<.05, **p<.01, ***p<.001

¹Reference group = Med TAU condition

Table 7*Descriptive statistics of help-seeking preferences by group at baseline and posttreatment*

<i>How likely is it that you would seek help for depression from the following sources?</i>	Baseline		Posttreatment	
	Med TAU+LS group (n=47) M(SD)	Med TAU group (n=46) M(SD)	Med TAU+LS group (n=36) M(SD)	Med TAU group (n=41) M(SD)
Professional services				
Mental health professional (e.g., psychologist, social worker, counselor)	5.0 (1.7)	5.0 (1.6)	5.8 (1.4)	4.7 (1.9)
Psychiatrist	4.2 (2.1)	4.5 (1.6)	5.0 (1.8)	4.0 (1.9)
Primary care or other medical doctor	5.2 (1.4)	5.2 (1.4)	5.3 (1.6)	4.6 (1.8)
Phone helpline	3.0 (1.8)	3.4 (1.6)	3.2 (1.9)	2.7 (1.6)
Self-help				
Self-help book	4.9 (1.5)	4.6 (1.5)	5.1 (1.8)	3.9 (1.8)
Mobile app for improving mental health	4.8 (1.4)	4.9 (1.4)	4.9 (1.7)	4.2 (1.8)
Self-help website for improving mental health	5.1 (1.3)	4.9 (1.3)	5.1 (1.3)	4.3 (1.7)
Search online for information on my problem	5.0 (1.6)	4.8 (1.8)	5.6 (1.3)	4.4 (1.9)
Informal or paraprofessional help				
Intimate partner (e.g., girlfriend, boyfriend, husband, wife)	4.2 (2.1)	4.3 (2.1)	4.6 (2.2)	4.4 (2.0)
Friend (not related to you)	3.6 (1.8)	4.0 (1.5)	4.6 (2.0)	4.4 (1.8)
Parent	2.7 (2.1)	3.3 (2.1)	2.9 (2.0)	3.2 (2.0)
Other relative/family member	3.6 (2.0)	3.7 (1.9)	3.7 (2.0)	3.1 (1.8)
Minister or religious leader	2.5 (1.9)	2.8 (1.7)	2.4 (2.0)	2.3 (1.5)
I would not seek help from anyone	2.1 (1.4)	2.5 (1.6)	2.0 (1.6)	2.4 (1.6)

Note. All items were measured on a 7-point scale from “extremely unlikely” (1) to “extremely likely” (7)

Table 8

Estimated marginal means with 95% CI of best-fitting MLMs for help-seeking preferences

<i>Source</i>	Mental health professional	Psychiatrist	Primary care or other medical doctor	Phone helpline	Self-help book	Mobile app for improving mental health	Self-help website for improving mental health	Search online for information on my problem	Intimate partner	Friend	Parent	Other relative/ family member	Minister or religious leader	I would not seek help from anyone
Intercept	5.04*** [4.56, 5.52]	4.23*** [3.71, 4.76]	5.21*** [4.78, 5.65]	3.04*** [2.55, 3.53]	4.87** * [4.39, 5.35]	4.85*** [4.40, 5.30]	5.06*** [4.66, 5.47]	5.00*** [4.53, 5.47]	4.22*** [3.61, 4.82]	3.57*** [3.07, 4.08]	2.68*** [2.09, 3.27]	3.55*** [3.01, 4.10]	2.53*** [2.03, 3.03]	2.09*** [1.65, 2.52]
Timepoint	0.73* [0.16, 1.29]	0.81* [0.19, 1.42]	0.10 [-0.43, 0.64]	0.10 [-0.44, 0.65]	0.22 [-0.27, 0.71]	-0.11 [-0.57, 0.36]	-0.06 [-0.47, 0.37]	0.59† [-0.03, 1.21]	0.52* [0.02, 1.02]	0.98*** [0.47, 1.50]	0.34 [-0.15, 0.83]	0.17 [-0.40, 0.75]	-0.25 [-0.73, 0.23]	-0.09 [-0.68, 0.52]
Condition ¹	-0.02 [-0.70, 0.66]	0.24 [-0.51, 0.99]	0.01 [-0.62, 0.63]	0.39 [-0.30, 1.09]	-0.29 [-0.96, 0.39]	0.04 [-0.60, 0.68]	-0.19 [-0.77, 0.38]	-0.15 [-0.83, 0.52]	0.09 [-0.77, 0.94]	0.47 [-0.25, 1.19]	0.58 [-0.26, 1.42]	0.14 [-0.63, 0.92]	0.27 [-0.44, 0.98]	0.44 [-0.19, 1.06]
Timepoint x condition ¹	-1.03* [-1.81, -0.25]	-1.26** [-2.10, -0.42]	-0.76* [-1.49, -0.02]	-0.83* [-1.58, -0.09]	-0.81* [-1.49, -0.13]	-0.56† [-1.20, 0.08]	-0.46 [-1.04, 0.11]	-1.03* [-1.89, -0.17]	-0.59† [-1.27, 0.10]	-0.75* [-1.46, -0.04]	-0.39 [-1.07, 0.28]	-0.78† [-1.57, 0.01]	-0.39 [-1.05, 0.27]	-0.02 [-0.86, 0.81]
BIC	677.91	708.93	650.56	678.73	661.87	643.18	608.41	683.81	687.73	680.01	701.81	709.20	669.23	660.37
Number of observations	171	171	171	171	171	171	171	171	171	171	171	171	171	171
Number of participants	93	93	93	93	93	93	93	93	93	93	93	93	93	93

†p=.10, *p<.05, **p<.01, ***p<.001

¹Reference group = Med TAU condition

FIGURES

Figure 1

CONSORT flow diagram of participants in study

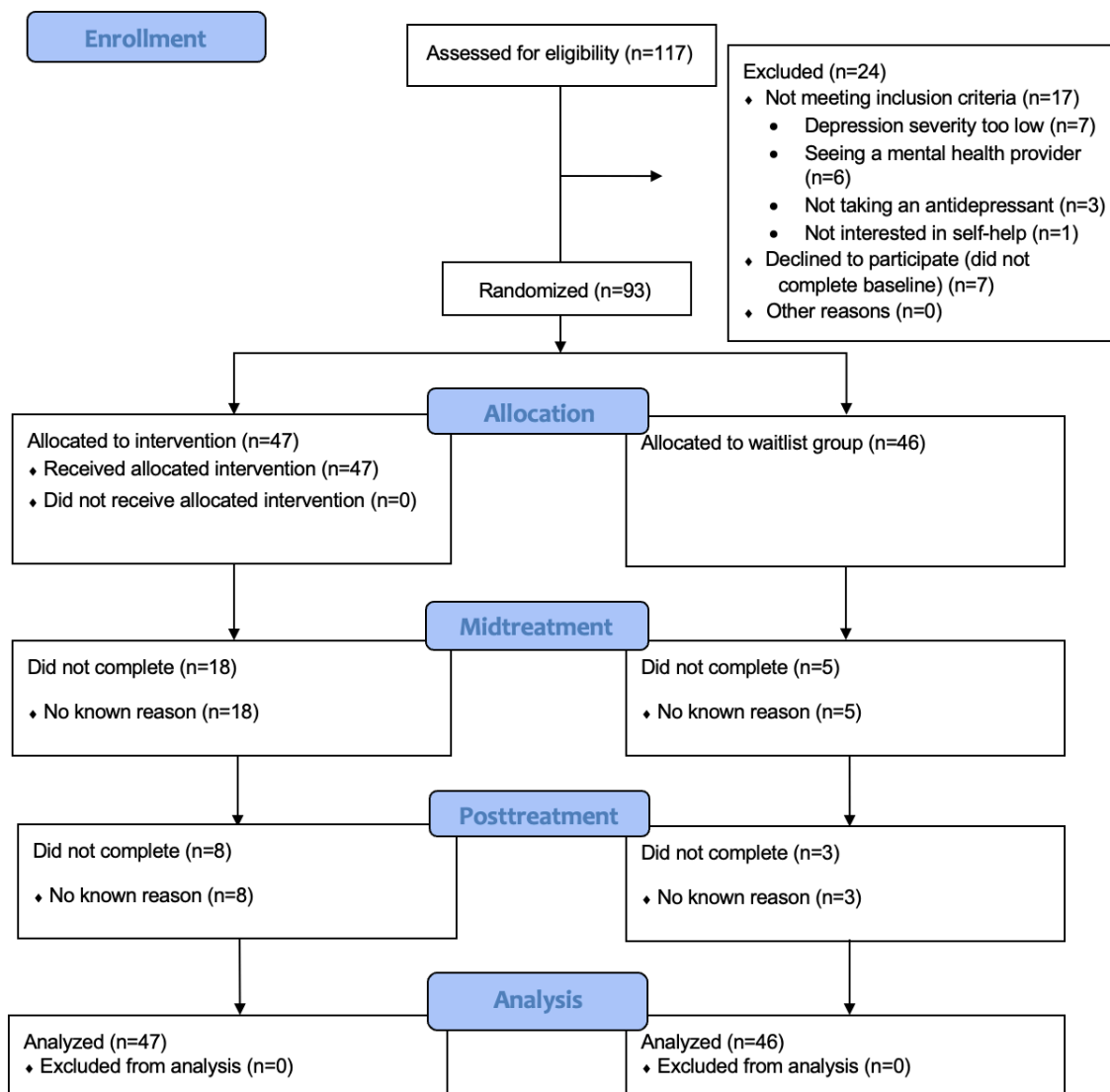


Figure 2

Estimated marginal means of depression over time by condition

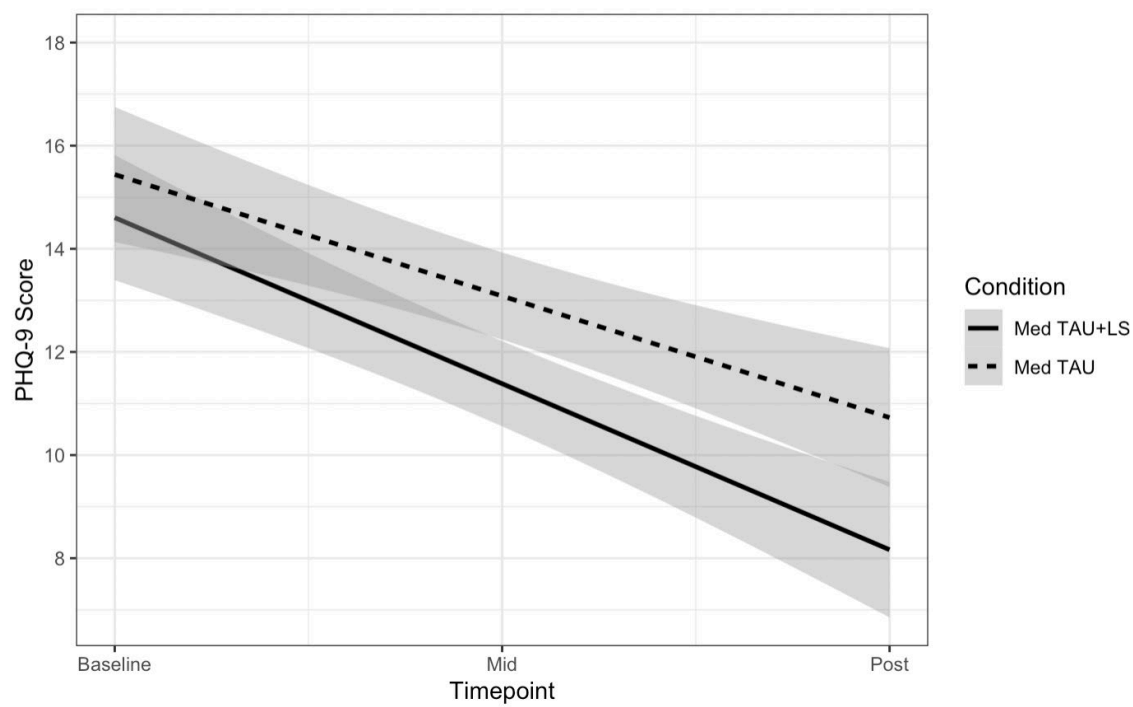


Figure 3

Estimated marginal means of mental health-related quality of life over time by condition

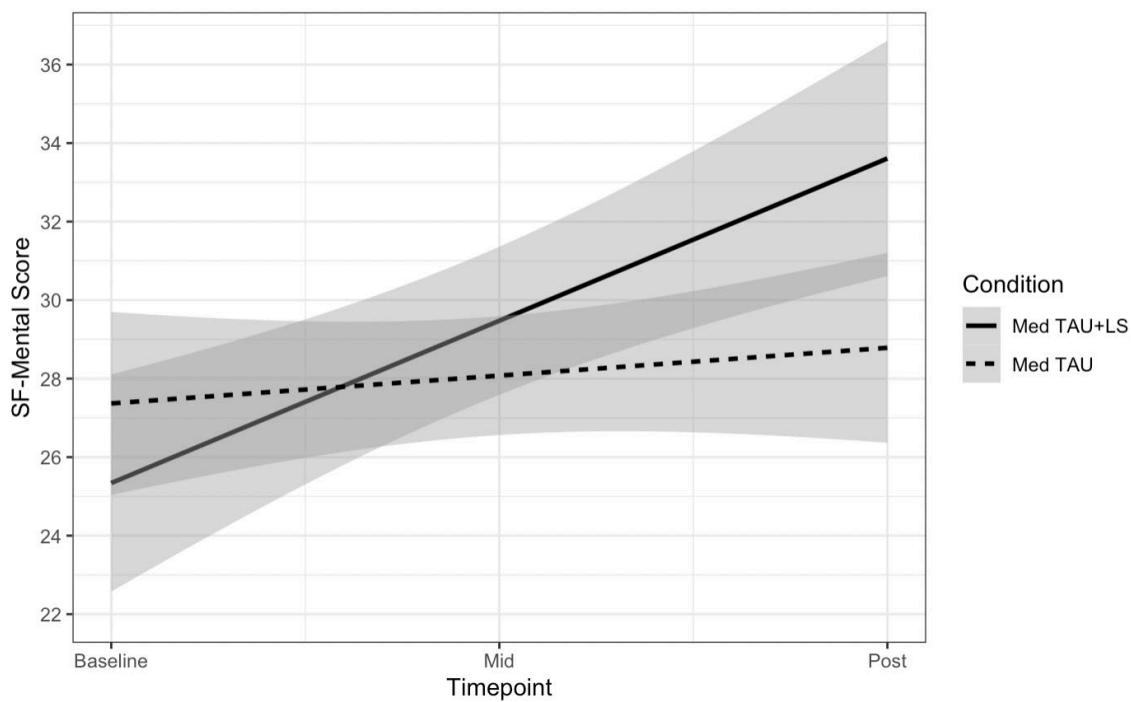
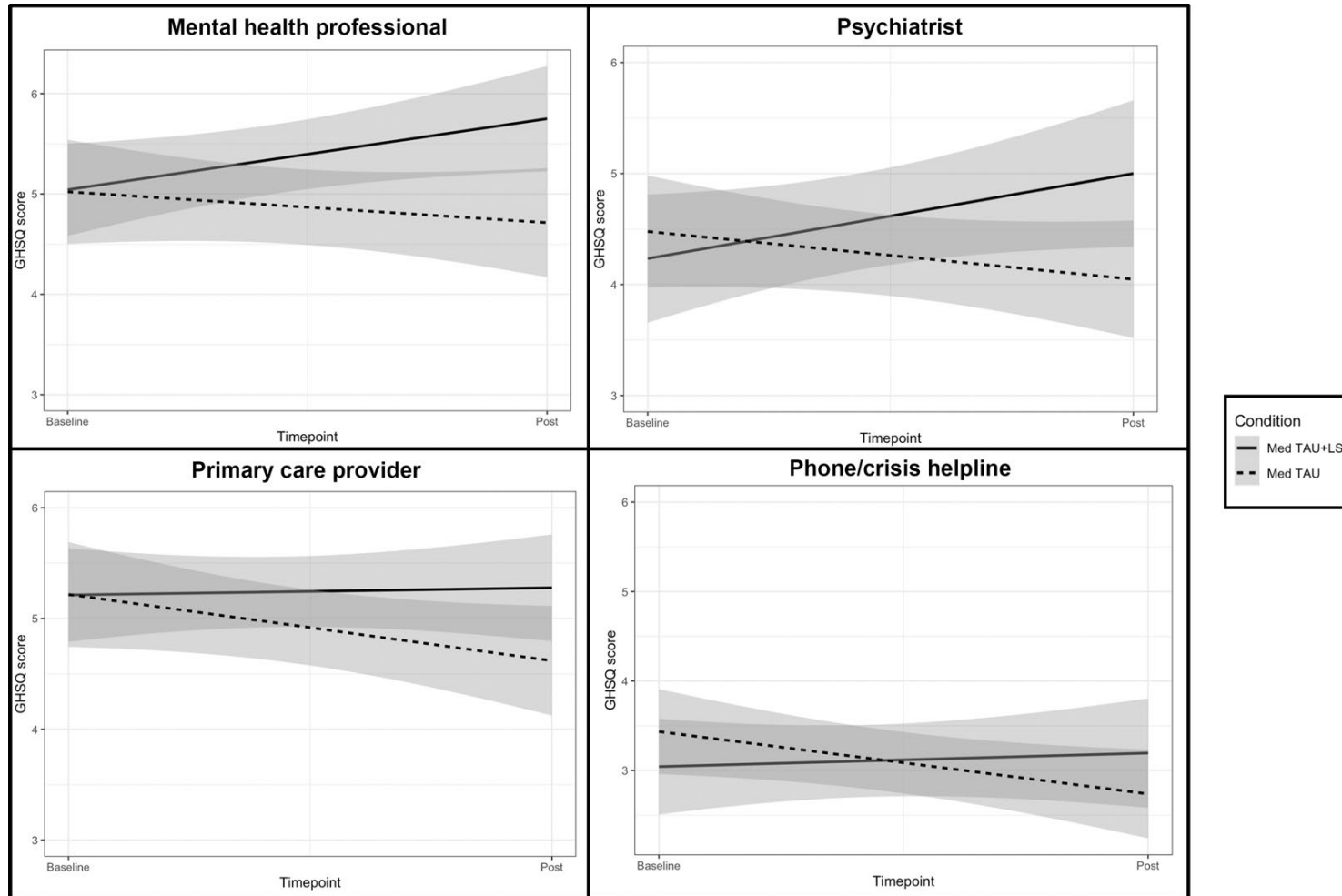


Figure 4

Estimated marginal means of the likelihood of seeking help for depression from professional sources over time by condition



APPENDIX A: SAMPLES OF *LIFESTORIES* INTERVENTION*Meeting the video storytellers*



LifeStories ■ ■ ■ ■

☰

Episode 1

- Welcome
- Getting Ready
- This Week's Stories
- Wrap-up Exercise
- Bonus Stories
- Summary

Welcome to LifeStories!



Watching a video narrative focused on personal values

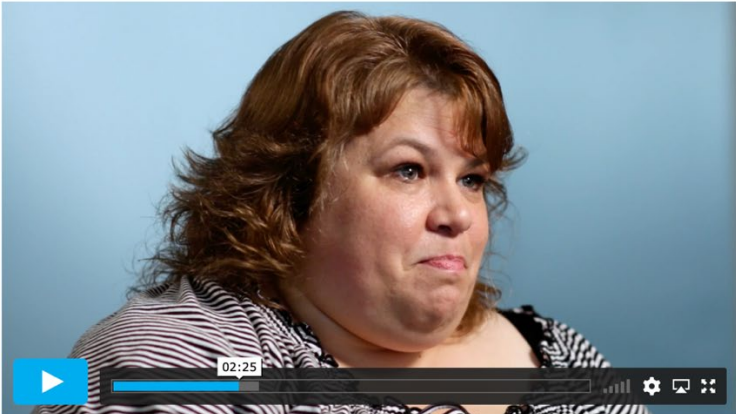
LifeStories ■ ■ ■ ■ ■

☰

Episode 2

- Welcome
- This Week's Stories**
- Wrap-Up Exercise
- Bonus Stories
- Summary

Defining Your Values



←

→

Real stories of coping with depression

Reflecting on lessons learned while watching a story

- ☰
- Episode 1
 - Welcome
 - Getting Ready
 - This Week's Stories
 - Wrap-up Exercise
 - Bonus Stories
 - Summary

LifeStories

Story Notes

Use this space to jot down some notes about the stories you just heard. **What stood out to you? Anything you heard that you want to make sure and remember?**

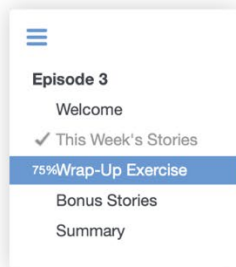
At the end of this session, you'll be able to email these notes to yourself so that you can remember things you liked or found useful in the videos.

When listening to Diane, I thought about some of the really low points I've had, and how I always bounced back...

If you're not sure what to write, that's okay. What's one or two messages that stood out to you, or felt most relevant to your life?

Learning about an activity to practice acceptance in daily life

LifeStories



In the video, we described the following activity.

For one day, **whenever you have a difficult thought or feeling, write it down on an index card or scrap of paper.** Any thought or feeling you wish you did not have. Then, make a conscious choice to carry these cards with you throughout the day, such as in your pocket, bag, or purse.

The purpose is not to make the thought or feeling go away. As we heard from our storytellers, this can have more costs than benefits in the long-run. Instead, this activity is about learning how to **bring difficult thoughts and feelings along with you for the ride** while you continue to do things you truly value.



Practicing a guided video meditation

LifeStories ■ ■ ■ ■ ■

- ☰
- Episode 4
 - Welcome
 - This Week's Stories
 - 17% Mindfulness Practice**
 - Bonus Stories
 - Summary
 - Continuing Your Journey

Try it yourself 

Guided Meditation



Real stories of coping with depression

CURRICULUM VITAE

CARTER HASKELL DAVIS, M.S.

2810 Old Main Hill
 Logan, Utah 84322
 carter.davis@usu.edu
 646 491 1732

Education

- 2018-present **DOCTORAL CANDIDATE IN CLINICAL AND COUNSELING PSYCHOLOGY**
 Utah State University - Logan, UT
 Graduate Advisor: Michael E. Levin, PhD
 Dissertation (defended): *Storytelling to Promote Mental Health: A Conceptual Analysis and Application to Acceptance and Commitment Therapy for Depression*
- 2021 **MASTER OF SCIENCE, PSYCHOLOGY**
 Utah State University - Logan, UT
 Thesis: *Bibliotherapy for Depression: Evaluating Cognitive Behavioral Therapy and Acceptance and Commitment Therapy Approaches and Examining the Role of Client Choice*
- 2015 **BACHELOR OF FINE ARTS, PRINTMAKING**
 Rhode Island School of Design - Providence, RI
 Liberal Arts Concentration in Social Science

Awards & Honors

- 2018-present **PRESIDENTIAL DOCTORAL RESEARCH FELLOWSHIP**
 Utah State University
- 2022 **WALTER R. BORG SCHOLARSHIP**
 Utah State University
- 2019-2022 **ANTHONY LAPRAY SCHOLARSHIP**
 Utah State University
- 2022 **STUDENT SPOTLIGHT AWARD**
 Association for Contextual Behavioral Science
- 2021 **GRADUATE RESEARCH AND CREATIVE OPPORTUNITIES GRANT**
 Utah State University
- 2020 & 2021 **JUNIOR INVESTIGATOR POSTER AWARD**
 Association for Contextual Behavioral Science
- 2012-2015 **DEAN'S LIST**
 Rhode Island School of Design
- 2015 **SENIOR PRINTMAKING AWARD**
 Rhode Island School of Design

Clinical Experience (Graduate School)

- 2022 **COMMUNITY PSYCHOLOGY CLINICAL ASSISTANTSHIP**
Utah State University Behavioral Health Clinic - Logan, UT
Supervisor: Sara Boghosian, PhD
- Provided individual psychotherapy with adult community clients using various evidence-based interventions
 - Co-facilitated DBT groups for adolescents
 - Conducted psychoeducational evaluations, compiled integrated reports, and facilitated client feedback sessions
- 2021-2022 **ATHLETICS CLINICAL ASSISTANTSHIP**
Utah State University Anxiety Specialty Clinic - Logan, UT
Supervisor: Michael Twohig, PhD
- Conducted individual psychotherapy with Division I student-athletes using ACT and exposure therapy
 - Performed structured psychodiagnostic and personality assessment
 - Consulted with interdisciplinary student-athlete wellness team
- 2019-present **RESEARCH THERAPIST**
USU ACT Research Group - Logan, UT
Supervisor: Michael Twohig, PhD
- Serve as ACT therapist in various clinical research studies
 - Populations have included school-based treatment of adolescent anxiety and group therapy for adults with GAD
 - Participate in group supervision to ensure treatment fidelity
- 2020-2021 **PRACTICUM THERAPIST**
Utah State University Anxiety Specialty Clinic - Logan, UT
Supervisor: Michael Twohig, PhD
- Performed individual psychotherapy with adults and adolescents
 - Received advanced training in ACT
 - Administered psychodiagnostic, personality, and outcome assessments
- 2019-2020 **PRACTICUM THERAPIST**
Utah State University Psychology Community Clinic - Logan, UT
Supervisors: Susan Crowley, PhD & Sara Boghosian, PhD
- Provided individual psychotherapy to adults, adolescents, and families
 - Trained in ACT, CBT, DBT, interpersonal psychotherapy
 - Provided psychoeducational evaluations, compiled integrated reports, and facilitated client feedback sessions

Previous Clinical Experience

- 2013-2015 **INPATIENT ACTIVITIES THERAPIST**
Butler Hospital – Providence, RI
Supervisor: Barbara Ostrove, MA, OTR/L, FAOTA
- Conceived and executed expressive arts therapy protocols for groups on adult inpatient psychiatric units
 - Received training in evidence-based therapies such as ACT and integrated theoretical principles into art therapy protocols
 - Attended treatment team meetings with interdisciplinary hospital staff
- 2016-2017 **SPIRITUAL CARE VOLUNTEER**
Butler Hospital – Providence, RI
Supervisor: The Rev. Ellen Casey
- Delivered interfaith supportive counseling to psychiatric inpatients
- 2013 **PROGRAM INTERN, 2013**
Arts & Minds – New York, NY
Supervisor: Carolyn Halpin-Healy, MA
- Assisted with group art therapy interventions for community members with Alzheimer’s disease and other dementias
 - Aided with group tours and discussions in local art museums

Research Experience

- 2019-PRESENT **GRADUATE RESEARCH ASSISTANT**
Utah State University ACT Research Group
- Co-lead the design and development of a suite of ACT-based online self-help programs (ACT Guide) for both adults and adolescents
 - Generated original creative content including clinical illustrations and interactive exercises
 - Tracked and analyzed program usage data to increase reach
 - Collaborated with community stakeholders to extend user base
- 2015-2018 **SENIOR RESEARCH ASSISTANT (FULL-TIME)**
RESEARCH ASSISTANT (FULL-TIME)
Butler Hospital/Warren Alpert Medical School of Brown University
- Lead coordinator for several NIHM-funded clinical trials
 - Performed semi-structured psychodiagnostic interviews with psychiatric inpatients, outpatients, and primary care patients
 - Conducted comprehensive suicide risk evaluations and documentation
 - Gained extensive experience with serious mental illness populations

2014-2015 **UNDERGRADUATE RESEARCH ASSISTANT**

Butler Hospital/Warren Alpert Medical School of Brown University

- Assisted with data collection and management for NIMH-funded clinical trials
- Observed psychological evaluations on inpatient hospital units
- Participated in weekly research team meetings

Original Publications in Peer-Reviewed Journals

1. Akbari, M., Seydavi, M., **Davis, C.H.**, Levin, M.E., Twohig, M.P., & Zamani, E. (In Press). The current status of acceptance and commitment therapy (ACT) in Iran: A comprehensive systematic review. *Journal of Contextual Behavioral Science*.
2. Loureiro, C. P., Faro, L., Dias, R. V., Torres, B., Moreira-de-Oliveira, M. E., Santos-Ribeiro, S. D., de Menezes, G. B., Fontenelle, L. F., **Davis, C. H.**, & Twohig, M. P. (In Press). Acceptance and commitment therapy for obsessive compulsive disorder in a Brazilian context: Treatment of three cases. *Journal of Contextual Behavioral Science*.
3. Petersen, J.M., **Davis, C.H.**, Renshaw, T.L., Levin, M.E., & Twohig, M.P. (In Press). School-based acceptance and commitment therapy for adolescents with anxiety: A pilot trial. *Cognitive and Behavioral Practice*.
4. Krafft, J., Ong, C. W., **Davis, C. H.**, Petersen, J. M., Levin, M. E., & Twohig, M. P. (In Press). An open trial of group acceptance and commitment therapy (ACT) with an adjunctive mobile app for generalized anxiety disorder (GAD). *Cognitive and Behavioral Practice*.
5. **Davis, C.H.**, Gaudiano, B.A., McHugh, L., & Levin, M.E. (2021). Integrating storytelling into the science and practice of contextual behavioral science. *Journal of Contextual Behavioral Science*, 20, 155-162.
6. **Davis, C.H.**, Krafft, J., Hicks, E.T., & Levin, M.E. (2021). The role of psychological inflexibility and perspective taking in anti-racism and anti-sexism. *Personality and Individual Differences*, 175.
7. Levin, M.E., Krafft, J., **Davis, C.H.**, & Twohig, M.P. (2021). Evaluating the effects of guided coaching calls on engagement and outcomes for online acceptance and commitment therapy. *Cognitive Behaviour Therapy*.
8. Haeger, J., **Davis, C.H.** & Levin, M.E. (2020). Utilizing ACT Daily as a self-guided mobile app for clients waiting to receive services at a college counseling center. *Journal of American College Health*.
9. Gaudiano, B.A., **Davis, C.H.**, Miller, I.W., & Uebelacker, L.A. (2020). Pilot randomized controlled trial of a video self-help intervention for depression based on acceptance and commitment therapy: Feasibility and acceptability. *Clinical Psychology and Psychotherapy*, 27(3), 396-407.
10. Levin, M.E., An, W., **Davis, C.H.** & Twohig, M.P. (2020). Evaluating acceptance and commitment therapy and mindfulness-based stress reduction

- self-help books for college student mental health. *Mindfulness*, 27(3), 396-407.
11. Gaudiano, B.A., **Davis, C.H.**, Miller, I.W., & Uebelacker, L.A. (2019). Development of a storytelling video self-help intervention based on acceptance and commitment therapy for major depression: Open trial results. *Behavior Modification*, 43(1), 56-81.
 12. Gaudiano, B.A., **Davis, C.H.**, Epstein-Lubow, G., Johnson, J.E., Mueser, K.T., & Miller, I.W. (2017). Acceptance and commitment therapy for inpatients with psychosis (the REACH Study): Protocol for treatment development and pilot testing. *Healthcare*, 5, 23.
 13. Gaudiano, B.A., Schofield, C.A., **Davis, C.H.**, & Rifkin, L.S. (2017). Psychological inflexibility as a mediator of the relationship between depressive symptom severity and public stigma in depression. *Journal of Contextual Behavioral Science*, 6, 159-165.
 14. Moitra, E., Gaudiano, B.A., **Davis, C.H.**, & Ben-Zeev, D. (2017). Feasibility and acceptability of post-hospitalization ecological momentary assessment in patients with psychotic-spectrum disorders. *Comprehensive Psychiatry*, 74, 204-213.

Book Chapters

1. **Davis, C.H.**, Twohig, M.P., Levin, M.E. (In Press). Acceptance-Based Behavioral Therapies. In S.B. Dermer & J.R. Abdullah (Eds.). *Encyclopedia of Multicultural Counseling, Social Justice, and Advocacy*. SAGE Publications.
2. Petersen, J.M., **Davis, C.H.**, Hayes, L., Ciarrochi, J. (In Press). The DNA-V Model of ACT for Development and Growth. In C. Rivera & S. Ortiz (Eds.). *Contextual Therapies in Children, Adolescents, and Parents: Fundamentals and Clinical Applications*.
3. Twohig, M. P., Krafft, J., Petersen, J. M., & **Davis, C. H.** (2022). Training and Supervision in Acceptance and Commitment Therapy. In D. McKay, J. Abramowitz, & E. Storch (Eds.). *Training and Supervision in Specialized Cognitive-Behavior Therapy: Methods, Settings, & Populations*. The American Psychological Association Press: Washington DC.

Presentations at Professional Conferences

1. **Davis, C.H.**, Donahue, M., Uebelacker, L.A., Gaudiano, B.A., Twohig, M.P., & Levin, M.E. (2022). Storytelling-based ACT as an adjunctive treatment for individuals taking antidepressants: A randomized controlled trial. In M.L. Donahue (Chair), *Delivering technology-supported ACT for health behavior promotion: Strategies, implications, and future directions*. Paper presented at the Annual World Conference 20 of the Association for Contextual Behavioral Science, San Francisco, CA.
2. **Davis, C.H.**, Capel, L. K., Krafft, J., Twohig, M.P., DeBerard, M.S., & Levin, M.E. (2021). Self-Help for Self-Stigma? Evidence from a Randomized Trial of Acceptance and Commitment Therapy (ACT) and Traditional Cognitive Behavioral Therapy (CBT) for Depression. Poster presented at the Annual World Conference 19 of the Association for Contextual Behavioral Science (online conference).
3. **Davis, C.H.**, Klimczak, K., & Levin, M.E. (2021). Scaling up an online acceptance and commitment therapy program for general mental health: Rollout and community impressions. In J.M. Petersen (Chair), *Advancements in digital acceptance and commitment therapy to improve population health*. Paper presented at the Annual World Conference 19 of the Association for Contextual Behavioral Science (online conference).
4. Krafft, J., **Davis, C. H.**, Twohig, M. P., & Levin, M. E. (2020). Impact of coaching on outcomes, engagement, and processes of change in an online ACT intervention. Paper presented at the 54th annual convention of the Association for Behavioral and Cognitive Therapies, Philadelphia, PA.
5. **Davis, C.H.**, Levin, M.E., Twohig, M.P., & DeBerard, M.S. (2020). Implementing an Acceptance and Commitment Therapy Intervention for Depressed College Students through Online Bibliotherapy: A Randomized Controlled Trial. In J.M. Petersen (Chair), *Broader Reach, Bigger Impact: Expanding Access to Contextual Behavioral Science through Digital Interventions*. Paper presented at the Annual World Conference 18 of the Association for Contextual Behavioral Science, New Orleans, LA.
6. **Davis, C.H.**, Krafft, J., Twohig, M.P., & Levin, M.E. (2020). Understanding Attitudes and Perceived Behavioral Responsibility towards Global Climate Change through Psychological Flexibility Processes. Poster presented at the Annual World Conference 18 of the Association for Contextual Behavioral Science, New Orleans, LA.
7. **Davis, C.H.**, An, W., Levin, M.E., & Twohig, M.P. (2019). A Randomized Controlled Trial of Mindfulness-based Stress Reduction versus Acceptance and Commitment Therapy Bibliotherapy for College Student Mental Health. Poster presented at the Association for Behavioral and Cognitive Therapies 53rd Annual Convention, Atlanta, GA.
8. Gaudiano, B.A., **Davis, C.H.**, Epstein-Lubow, G., & Miller, I. (2018). Researching the Effectiveness of Acceptance-based Coping during Hospitalization: Initial Results from the REACH Project. In B.A. Gaudiano (Chair), *Bringing ACT for Psychosis into the "Real World": Recent Developments in Dissemination and Implementation*. Paper presented at

- the Annual World Conference 16 of the Association for Contextual Behavioral Science, Montreal, Quebec, Canada.
9. Uebelacker, L.A., Gaudiano, B.A., **Davis, C.H.**, & Miller, I. (2018). Development and pilot testing a storytelling video self-help program based on Acceptance and Commitment Therapy for depression. In J. Krafft (Chair), *Barriers and innovations in self-guided ACT interventions*. Paper presented at the Annual World Conference 16 of the Association for Contextual Behavioral Science, Montreal, Quebec, Canada.
 10. Feltus, S., **Davis, C. H.**, Uebelacker, L. A., & Gaudiano, B. A. (2018). The potential role of psychological flexibility in the lived experience of individuals coping with depression. Poster presented at the annual Mind Brain Research Day, Brown University, Providence, RI.
 11. **Davis, C.H.**, Van Noppen, D., Gaudiano, B.A., Uebelacker, L.A., & Miller, I.W. (2017). Feasibility and Acceptability of a Storytelling Video Self-Help Intervention for Major Depression: Initial Open Trial Results. Poster presented at the annual Mind Brain Research Day, Brown University, Providence, RI.
 12. Moitra, E., Gaudiano, B.A., **Davis, C.H.**, & Arney, M.F. (2016). Using mobile technology to examine contextual predictors of outcomes in individuals experiencing psychosis following a hospital discharge. In J. Rizo (Chair), *Ecological momentary assessments (EMA) to measure ACT processes and behavioral health across populations*. Paper presented at the 14th Annual World Conference of the Association for Contextual Behavioral Science, Seattle, WA.
 13. **Davis, C.H.**, Gaudiano, B.A., Schofield, C., & Rifkin, L. (2016). The Role of Psychological Flexibility in Explaining the Relationship between Depression and Stigma. Poster presented at the annual Mind Brain Research Day, Brown University, Providence, RI.
 14. Ostrove, B., Lynch, K., Gaudiano, B.A., & **Davis, C.H.** (2015). Occupational Therapy and Acceptance and Commitment Therapy (ACT): Practical Strategies for Mental Health Intervention. Poster presented at the 2015 American Occupational Therapy Association Annual Conference and Expo, Nashville, TN.
 15. Aldrich, D., **Davis, C.H.**, Jang, A., Titova, A., & Ostrove, B. (2014). Healing Arts: Therapeutic Benefits of Art Therapy Groups. Poster presented at Butler Hospital Occupational Therapy Week 2014, Providence, RI.

Invited Presentations

1. **Davis, C.H.** (2022). *Making ACT for Depression more Personal and Impactful* [Webinar]. Student Spotlight Award presentation given to the Association for Contextual Behavioral Science. Recording: <https://tinyurl.com/yck7e65c>
2. **Davis, C.H.** & Donahue, M.L. (2020). *Practicing Present Moment Awareness During a Pandemic* [Webinar]. Sorenson Legacy Foundation Center for Clinical Excellence at USU. Recording: <https://tinyurl.com/d9w3d7db>
3. **Davis, C.H.** (2017). *Mindful Stories: Mindfulness practice as a pathway to therapeutic storytelling*. Invited workshop given to community mental health providers at Butler Hospital, Providence, RI.
4. **Davis, C.H.** (2016). *Bodies, Minds, and Clay: Integrating mindfulness into art therapy groups with inpatients*. Invited workshop given to community mental health providers at Butler Hospital, Providence, RI.
5. **Davis, C.H.** (2015). *Printmaking self-portraits: an art therapy protocol for inpatients*. Invited workshop given to occupational therapy students and mental health workers at Butler Hospital, Providence, RI.