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Canine-assisted Exposure Therapy

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Abstract

Fear and anxiety are natural reactions to actual threat conditions but can become “pathological” when over-generalized avoidance interferes with long-term wellbeing and valued living. Pervasive experiential avoidance hinders natural extinction processes as it reduces repeated contact with feared stimuli, a condition necessary for extinction to occur. Exposure therapy (ET) is a clinical analogue of extinction, and one of the best evidence-based treatments for fear and anxiety. However, ET’s usefulness suffers in real-world clinical conditions. The current conceptual paper proposes that ET’s limitations may be overcome through a tailored approach that integrates animal-assisted therapy (AAT), specifically the use of dogs, to incorporate the judicious use of safety conditions during ET. This paper posits that these procedural adjustments might enhance ET’s perceived acceptability by clients and therapists, offer flexibility in use for individual clinical presentations, and amplify long-term treatment gains, thereby targeting some of ET’s current limitations that keep the promise of this approach from those who may benefit from it.

Keywords: animal-assisted therapy, canine-assisted therapy, exposure therapy

Canine-Assisted Exposure Therapy

The current paper addresses how canine-assisted exposure therapy (CAET) might ameliorate barriers to accessing, completing, and maintaining treatment gains of exposure therapy (ET). This paper posits that animal-assisted therapy (AAT) and the judicious use of safety conditions may be integrated as an adjunctive approach to ET to address limitations without unduly sacrificing effectiveness.

Statement of the Problem

Anxiety and fear-based disorders are among the most common psychological issues across the globe, with especially high prevalence in Western Europe, North America, and Australasia (Baxter et al., 2013). Over the course of a lifetime, up to 33.7% of U.S. adults will experience posttraumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), or an anxiety disorder (Kessler et al., 2012). These disorders are associated with significant personal distress, co-morbidities, and disrupted functioning at work/school, at home, and in relationships (Bandelow & Michaelis, 2015). Anxiety and fear-based disorders are also costly at a national level. Direct medical expenditures (e.g., psychopharmaceuticals, inpatient and outpatient services, and emergency room visits) and indirect costs (e.g., lower work productivity and higher absenteeism) comprise roughly 30% of overall expenditures allotted for psychological disorders in the United States (DeVane et al., 2005).

The *Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition* (DSM-5; American Psychological Association [APA], 2013) categorizes the following as anxiety disorders: separation anxiety disorder, selective mutism, specific phobia, social anxiety disorder, panic disorder, agoraphobia, and generalized anxiety disorder. Additional DSM-5 categories include obsessive-compulsive and related disorders, and trauma- and stressor-related disorders.

In the cognitive behavioral perspective, these conditions differ in topography yet overlap significantly in conceptualization and treatment (Carpenter et al., 2018). Fear and anxiety are both natural reactions an individual experiences when facing a real or perceived threat. Each evokes a host of internal and external psychological changes in the individual, including cognitions (e.g., rumination and racing thoughts), physiological arousal, and escape or avoidant behaviors (Blakey & Abramowitz, 2016). Fear and anxiety become "pathological" when persistent attempts to avoid a non-present threat interfere with daily functioning.

In PTSD, this presents as avoidance of trauma-related stimuli (e.g., people, places, activities, and objects) that elicit upsetting memories, thoughts, or feelings (APA, 2013). Similarly, OCD includes attempts to use thought suppression or behavioral compulsions to manage distress and prevent feared outcomes. To illustrate an anxiety disorder subtype, an individual diagnosed with social anxiety disorder may use avoidance to protect from perceived negative judgment by others.

In terms of cognitive behavioral treatment, ET often serves as a first-line intervention across these disorders (Abramowitz, 2013). Under randomized controlled trial (RCT) conditions, ET has attained outstanding support as a treatment for anxiety disorders (e.g., Barlow, 2002), OCD (e.g., Foa et al., 2005), and PTSD (e.g., Rothbaum et al., 2000). However, Harned and colleagues (2013) describe that ET holds "the dubious distinction of being one of the most empirically supported yet least used psychological treatments" (p. 754). In practice, ET comes with substantial skepticism and concern due to reports of low tolerability and non-compliance, premature dropout, and post-treatment symptom relapse. Consequently, some (e.g., Altschuler, 1999; Dravsnik et al., 2018; Lefkowitz et al., 2005) have called for alternate approaches to address ET's real-world limitations. As Böhnlein and colleagues (2020) surmise, "Once the

question of who profits from [ET] most is answered, the question of what to do with the ones who do not becomes even more pressing. This group of hard-to-treat patients might need a more optimized and individualized treatment" (p. 816).

The purpose of this paper is to lay out the conceptual foundations for the practice of ET, illuminate limitations in its use, and suggest adjunctive aids to bolster its clinical relevance and utility. The relationship between theory and practice is of central importance to behavioral practitioners. As such, the discussion begins with the topic of behavior selection theory, its role in developing destructive fear psychopathology, and its use as a theoretical guide for implementing exposure-based interventions.

Behavioral Interpretive Framework

The behavioral interpretive framework is observational, descriptive, and integrative. It offers a relational-contextual account of behavioral phenomena grounded in process philosophy and the pragmatic method (Chiesa, 1994). The behavioral account rests on a selectionist paradigm and necessarily departs from psychological essentialism (Palmer & Donahoe, 1992). A discussion of selectionistic assumptions follows.

Behavior Selection

The idea of behavior selection suggests that individuals are evolving systems in their own right (Donahoe & Palmer, 1994; Donahoe & Vegas, 2011; Hayes, 1992; Skinner, 1981). *Selection* refers to how the individual and environment interplay with and transform each other. Evolving systems are processual and transitory, never fixed. Selection processes act over time; thus, behavior in the moment is historical in development.

The primary referent in selection is the historical context of action, wherein present functions become the past for more present actions (Hayes, 1992). The term *learning* is a

shorthand term for the accumulated changes that result across time for the individual. Therefore, all learning is accumulative since new experiences add to history, while the history before provides context and informs those new experiences in the making. As Skinner (1981) observes, behavior evolved as a set of functions fostering the interchange between the individual's personal history and the current situation. According to Hayes (1992), "From this perspective, a learning history may be conceptualized as a succession of present events, wherein each new present entails all previous events" (p. 143). Since one's learning history and the stimulating environment are always co-evolving and in flux, experience is never fixed. The psychological present is "the operator" on history in erasing the old reality in passing moments and reconstituting the new reality in the emergent now. Therefore, the outcome of selection is synergistic in that behavior is always more than the sum of conditions operating in the moment.

Most importantly, selection history determines the "establishing operations" of stimuli; namely, their eliciting, motivating, and consequating functions. This includes the hedonic stimulus qualities conferred (appetitive, neural, or aversive) along with the action tendencies coordinated with them (approach, indifference, freeze, or avoid) (Laraway et al., 2003).

Psychological Events as Integrated Whole Units

The emergence of psychological events reflects historically situated acts in context wherein the past and present co-create each other. In the selectionistic account, behavior is not defined by its observability alone, but rather as the action of the whole organism entering into orderly relations with its environment (Palmer, 2009). *Behavior* refers to any action of the individual, whether public or private in expression. *Environment* refers to everything that is not behavior. In tandem, the functional outcome of selection is always a unified behavior-environment relation and never behavior alone. As in, psychological events reflect integrative

(nondual) whole units organized by their functions given specific historical contexts of action (i.e., B *f* E / E *f* B). This is expressed as a three-term contingency relation in functional relations, specifically: behavior, function, and actional context.

Directly Acting Contingencies

In order to successfully adapt to a continuously changing world, the individual must learn two types of relations: (1) the significance of internal and external stimuli and (2) the actional consequences of its own behavior (Donahoe & Palmer, 1994; Donahoe et al., 1997; Donahoe & Vegas, 2011). The origins of psychological functions (i.e., meaning) are historical in making and organized through the joint action of respondent and operant conditioning processes operating in the moment. Both processes inform experience through direct contact with the consequences of one's behavior and shape the ability to derive verbal relations among events based on symbolic stimuli rather than the actual stimuli of events related (Hayes et al., 2002)

Respondents reflect a class of relatively rigid responses under strict antecedent control of the conditions in which they arise (Donahoe & Palmer, 1994; Donahoe & Vegas, 2011; Skinner, 1981). The respondent functional relation emphasizes a two-term contingency, specifically a stimulus-stimulus relation (CS-UCS) and the respondent behavior (CR) it guides. The respondent aspect of experience emphasizes that the behavioral component of an environment-behavior relation is the response evoked by antecedent stimuli without regard for the individual's behavior.

Operants reflect a class of relatively pliable responses under more flexible antecedent control of the conditions in which they arise (Donahoe & Palmer, 1994; Donahoe & Vegas, 2011; Skinner, 1981). The operant functional relation emphasizes a three-term contingency, specifically stimulus-response-stimulus consequence relation (S^D: R-S^C) and the operant

behavior it guides. Antecedent stimuli gain importance in the operant functional relation, as they mark the occasion for reinforcement or punishment based on the particular response generated by the individual. The operant aspect of experience emphasizes that the behavioral component of an environment-behavior relation is the response producing a stimulus consequence in the presence of other discriminative stimuli. In this way, discriminative stimuli occasion responses due to their temporal and historical correlation with reinforcers and punishers.

In closing, it is important to reiterate that respondent and operant relations reflect conceptual abstractions, or ways of speaking about psychological events for analytic purposes. As far as phenomenal experience is concerned, the analytic distinction is a nonissue that goes consciously unnoticed by the experiencer as both unfold together in the unified field of experience.

Verbally Acting Contingencies

Verbal relations represent a kind of generalized operant shaped during naturalistic language development, wherein arbitrary symbolic stimuli (e.g., names, words, ideas, and concepts) “substitute” for the formal properties of the events related (Hayes et al., 2002). This bidirectional relation situates reality in two places at once: in the direct experience and the verbal construal of the experiencer. The endless array of symbolic relations between stimuli, verbal and nonverbal (e.g., spoken word sound, written word, pictures, graphic symbols, and personal history and experiences) greatly extends the range of stimuli that can function as stimulus antecedents and consequences. For instance, some properties of an actual assault and experienced fear are partially verbally transformed through the experiencer’s narrative of the incident; thus, making self-knowledge potentially aversive when reflected upon later.

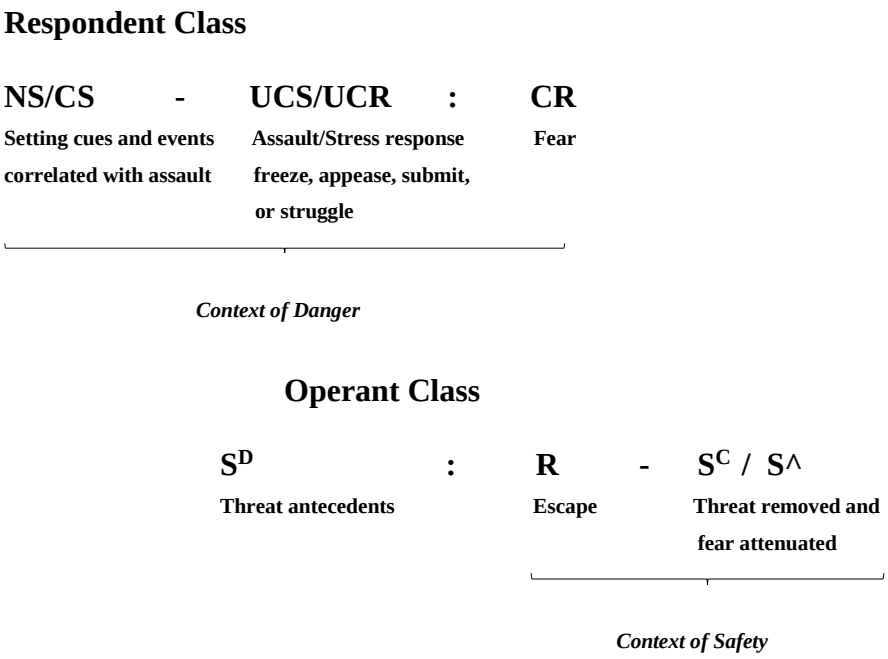
Since language enables abstract thinking, humans can arbitrarily relate, elaborate, contrast, compare, evaluate, and categorize past and present events (Hayes, 1992). For example, personal narratives are replete with verbal contrasts that involve the historical past recalled and the anticipated future projected (i.e., past as future in the present), as both play out in the psychological present. In more generalized forms, a verbalized learning history's motivating operations can lead to destructive experiential avoidance and inaction relative to personal goals and values. The value-and behavior-altering effects of personal history (see Laraway et al., 2003 above) are easily augmented and amplified through verbal functions.

The Role of Selection in Fear Conditioning

Fear responding is developed and maintained as a negatively reinforced response class as follows (see Figure 1). Initially neutral cues (NS) become conditioned excitatory cues (CSs) through their spatio-temporal correlation with a punishing event (UCS), giving rise to an unconditioned reflex (UCR) and a conditioned response. Threat antecedents become discriminative stimuli (S^D, danger cues) for future psychological distress and behavioral avoidance. Operant escape (R) leads to the removal of threat antecedents and attenuation in the fear response and antecedents coordinated with escape become discriminative stimuli (S^, safety cues, changed context) for psychological relief and behavioral approach. As internal somatic and symbolic stimuli are aspects of experience coordinated in both the danger and safety contexts of action, they become salient discriminative events governing escape and avoidance-based responding. In humans, the contingency relations that underlie the development of fear involve both direct and verbally constructed dimensions of experience. Verbally derived experience is functionally equivalent in serving as substitutive stimuli for related events.

Figure 1

The Respondent-Operant Functional Relation



Note. NS = Neutral Stimulus. CS = Conditioned Stimulus. UCS = Unconditioned Stimulus. UCR = Unconditioned Response. CR = Conditioned Response. S^D = Discriminative Stimulus. R = Response. S^C = Consequent Stimulus. S^ = Safety Cues.

Experiential Avoidance

Humans have a great aversion to psychological discomfort, particularly for fear and accompanying anxious apprehension (Christianson et al., 2012). One of the most profound outcomes of fear conditioning is the development of "experiential avoidance" (Hayes et al., 1999). Experiential avoidance reflects a negatively reinforced class of responses designed to control unwanted experiences (e.g., sensations, feelings, thoughts, images, memories, and action tendencies) and the situations that occasion them. When experiential avoidance comes under the control of verbal relational processes, the aversive qualities of experiences and situations are easily transformed by the verbal functions of personal narratives. This often leads to a persistent,

avoidance-based pattern of coping and inaction that may run counter to one's value-congruent living. Furthermore, diminished response-contingent reinforcement generates changes in mood as a negatively punished outcome of persistent avoidant responding.

The Role of Extinction in Fear Reduction

The process of extinction is a naturally occurring behavioral function. Extinction requires that the event missing from the functional relation is the evoking stimulus (the reinforcer or punisher, as the case may be) (Bouton, 2014). Respondent extinction of fear involves the repeated exposure to conditioned stimuli (CSs) in the absence of the aversive unconditioned stimulus (UCS^{-}), leading to a decline of the respondent. Operant extinction of fear occurs when a response (R) no longer generates an aversive stimulus consequence (S^{-}) in the presence of a discriminative stimulus (S^{D}), leading to a decline of the operant. Extinction of fear in either case involves contacting previously conditioned cues (CSs / S^{D}s) repeatedly (exposure) in the absence of the evoking punishing stimulus while simultaneously blocking escape and avoidance actions (response prevention). Extinction in exposure work involves recounting experience, not actually reliving the event (i.e., recounting an experience of being burned is not the same as actually being burned). Exposure work helps the client to discern between the two, though does not erase original learning. Because new learning does not permanently replace original learning, relapse remains a possibility given the context-dependency of conditioning and behavior change.

The Issue of Relapse

Behavior reflects contextually regulated action that is susceptible to the ever-changing conditions and circumstances that configure it. The role of context helps explain why behavior change is so difficult to sustain across time and place. Research indicates that extinction effects are highly sensitive to changes in context (Bouton, 1988; Bouton & Bolles, 1979; Rescorla &

Heth, 1975; as cited in Bouton, 2014). Critically, extinction does not result in unlearning, permanent erasure, or replacement of past conditioning. Instead, the original learning remains somewhat intact and may re-emerge under certain conditions, such as with the passage of time (i.e., spontaneous recovery), after re-exposure to the UCS (i.e., reinstatement), or when the CS is encountered in a context that differs from the original learning environment (i.e., renewal effect). Given these and other contextual influences, reversion to previously learned behavior is expected since new adaptive learning inhibits (but does not permanently replace or extinguish) the influence of previous learning history (Abramowitz, 2013).

This pertains to psychological therapy in that "symptom relapse" is a potential outcome of exposure-based interventions, including ET (Bouton, 2014). Based on the few RCTs with longitudinal outcomes of extinction-based treatments, relapse affects between 19% to 62% of cases, and therapeutic progress typically lasts between six to 12 months (Choy et al., 2007; Craske & Mystkowski, 2006). Bouton (2014) goes so far as to state, "Given the many possible context changes that can occur in the natural world after a behavior is inhibited, repeated lapses should always be expected" (p. 5). However, increasing the contextual generalizability of new behavior may reduce relapse (Bouton, 2014). From that perspective, ET might benefit from conducting exposure in varied contexts.

Safety Conditioning

When confronted by threatening situational antecedents, people seek to create safe environments free of danger and distress (Clark, 1999; Salkovskis, 1991). Two ways of doing this involve establishing safety cues (predictors) and safety behaviors (actions). *Safety cues* refer to a positively reinforced class of stimuli that predict and promote a sense of wellbeing, comfort, and security in the individual, thus indicating aversion-free places, things, and times. Stimuli that

serve as safety signals in everyday situations are pervasive in use, highly varied, individualized, and often operate beyond conscious awareness. Nonetheless, when present, safety cues signal approach, safe-here, and safe-now. For example, consider the presence of a trusted companion when feeling fearful. *Safety behaviors* refer to a negatively reinforced response class used to anticipate, avoid, or escape actual or perceived threat situations, and the feared outcomes expected to ensue. As with safety cues, safety behaviors are pervasive in use, highly varied, individualized, often operate beyond conscious awareness and, when employed, signal approach, safe-here, and safe-now. To illustrate a safety behavior, one might seek out their trusted companion when feeling anxious.

Safety actions are adaptive in most cases. However, when the antecedent targets of avoidance are objectively non-life-endangering, safety behaviors can generate a paradoxical increase in experiential avoidance and loss of contact with personal values (Blakey & Abramowitz, 2016; Blakey et al., 2019; Hayes et al., 1999; Salkovskis, 1991). An over-generalized reliance on safety conditions can interfere with the natural extinction of learned behaviors by decreasing expectancy violations (i.e., the difference between a client's feared expected outcome and the actual outcome that enables salience and retrievability of corrective new learning), preventing the development of more context-sensitive responses, and discouraging generalized distress tolerance (see Blakey & Abramowitz, 2016, for a more comprehensive review). Consequently, safety conditions may impede exposure-based therapeutic work if left undetected and operational.

However, an emerging argument proposes that, when used strategically, safety conditions may facilitate exposure work (Rachman et al., 2008). This idea provides the rationale for the judicious use of dogs as safety conditions in ET, as will be elaborated upon later in the paper.

Exposure Therapy

Fear conditioning is associated with a psychologically closed stance toward the world. The psychological intervention ET counters this by giving clients structured opportunities to engage with personally aversive, but realistically harmless, stimuli that lead to subsequent corrective therapeutic processing of past fear history (Abramowitz, 2013; Foa & Kozak, 1986; Foa et al., 2019). Procedurally, ET may be implemented via in vivo, imaginal, or interoceptive procedures using scripted, hierarchy-based, or simulated modalities. Regardless of the employed modality, ET requires that the participant make immediate, intimate contact with avoided experiences. Since escape and avoidance responses are fundamental action tendencies developed through fear conditioning, these defensive actions must be blocked. Response prevention encourages a deliberate return to the bodily unrest and cognitive dissonance generated by one's conditioning history. As such, response prevention is supported interpersonally through the therapeutic relationship (e.g., therapist's use of invitation, encouragement, coaching, praise, and reminders of goals and values). When properly executed, exposure work is done *with*, rather than *to*, the participant.

The Fear Structure

The cognitive behavioral formulation of fear conditioning emphasizes the mediational operation of a mechanism called the fear structure (Craske et al., 2014; Foa et al., 2019), which finds its origin of use in Lang's (1979) bio-informational theory of emotional imagery. According to this theory, the fear structure operates as a representational memory system that organizes the stimuli, responses, and meaning of conditioning history underlying fear development. For behavior change and emotional reprocessing to occur, the fear structure must be activated and new information available to be inputted along with old learning. In emotional

processing theory, a fear structure is activated (and becomes amenable to modification) when contextual stimuli emulate its stored, associative information. If corrective learning occurs at that time (for instance, through post-exposure therapeutic processing), adaptive new information about the feared stimulus may be stored alongside the original meaning. Thus, exposure creates ambiguity within the CS by imbuing it with new, adaptive meanings that compete for retrieval with old, maladaptive associations. However, this emotional processing account relies heavily on unobservable hypothetical mechanisms, leaving it theoretically cumbersome.

While the exact mechanisms underlying exposure's effectiveness are still debated, a return to inhibitory learning has gained recent support as the key process in corrective emotional processing (Rachman, 1980; as cited in Craske et al., 2014). Although researchers have proposed specific techniques to maximize the effects of inhibitory learning (e.g., Craske et al., 2014), methodological limitations and conflictual findings have thus far prevented concrete recommendations. Therefore, others have proposed alternative accounts of emotional reprocessing based on expectancy violation and variability as extensions to inhibitory learning theory (see Weisman & Rodebaugh, 2018 for a review). Whatever the explanatory account, the fact remains that ET works for most treatment completers, though the issue of relapse persists.

Limitations

Empirical support for ET's efficacy is robust but ultimately misleading in real-world conditions (Najavits, 2015; van Minnen et al., 2010; Zayfert et al., 2005). Most randomized controlled studies of ET use model participants with findings based on relatively limited duration outcomes. In clinical practice settings, therapists must adjust ET to engage ambivalent clients, accommodate those with severe or complex presentations, and enable treatment accessibility.

Additionally, most RCTs neglect to measure or address symptom relapse that impacts those who complete ET.

Acceptability and Inaccessibility

In practice, ET is routinely underutilized by therapists and therefore, largely inaccessible to clients (Becker et al., 2004; Olatunji et al., 2009). Negative provider attitudes toward ET are cited as a major contributor to this issue. Provider concerns appear centered on beliefs that ET damages therapeutic rapport, lacks tolerability for clients, encourages treatment dropout and non-compliance, and raises risk management and boundary violation issues (Becker et al., 2004; Olatunji et al., 2009; van Minnen et al., 2010). Of those willing to offer ET, agency restrictions may disallow off-site sessions sometimes needed to direct in vivo exposure (Wolitzky-Taylor et al., 2018). Consequently, therapists are dissuaded from offering ET, and clinical access to what some see as "the most effective psychological intervention for people with anxiety disorders" (Abramowitz, 2013, p. 548) is prevented.

Low Tolerability

Clients with access must also withstand the demands of ET. Treatment refusal, non-compliance, and dropout rates are inadequately captured by RCTs, which tend to include model participants able to access and tolerate high emotional arousal (Böhnlein et al., 2020; Najavits, 2015; van Minnen et al., 2010; Zayfert et al., 2005). In clinical practice, non-compliance, treatment ambivalence, and premature dropout appear to be transdiagnostic issues. As summarized by Milosevic and Radomsky (2013):

> Rates of refusal and dropout for exposure-based treatment range from 20% to 43% for OCD (Foa et al., 2005; Franklin & Foa, 1998; Stanley & Turner, 1995; Whittal, Thordarson, & McLean, 2005), 14% to 20% for posttraumatic stress disorder (PTSD;

> Hembree et al., 2003; Van Etten & Taylor, 1998), 7% to 31% for panic disorder (Cox, Endler, Lee, & Swinson, 1992), 0% to 45% for specific phobias (Choy, Fyer, & Lipsitz, 2007), and 0% to 27% for social phobia (Feske & Chambless, 1995) (p. 156).

These findings exceed those of less effective, non-exposure interventions, suggesting that ET as typically employed lacks palatability for real-world clients (Zayfert et al., 2005). Furthermore, Abramowitz (2013) has cited client non-compliance with confronting feared stimuli and dropping safety behaviors as the most common barriers to ET.

After considering these limitations, the question remains; is there a way to overcome some of the pragmatic limitations that plague ET in its standard use? It is to this question that we now turn.

The Adjunctive Use of Animal-Assisted Therapy

This section lays the rationale for the adjunctive use of AAT to overcome previously discussed limitations in ET and offers an overview of important procedural considerations for including animals as therapeutic aids. Topics include a general discussion of the human-animal bond as it applies across species, and a more specific review of AAT and the adjunctive use of dogs as therapeutic agents of change.

Explaining the Human-Animal Bond

While the human-animal bond can be explained using various psychological accounts (e.g., attachment, intrapsychic, or behavioral), central to each position is that animals have innate, unique traits and relational qualities that may establish a sense of contentment, security, openness, and wellbeing in humans (Bruneau & Johnson, 2016; Chandler, 2012; Kruger & Serpell, 2006).

Sociobiologist E.O. Wilson's biophilia hypothesis (1984) draws upon evolutionary theory to propose that the bonding and emotional connection modern humans experience toward animals results from phylogenetic and ontogenetic selection processes acting in time (Kellert & Wilson, 1993). The biophilia hypothesis stresses communion with nature and speaks to the mutually beneficial, shared relationship that has evolved between humans and other animal species. Selection contingencies operating at the phylogenetic level are species-specific, while those operating at the ontogenetic level are individual-specific. Phylogenetic selection accounts for the general relationships developed between humans and animals over millennia (National Geographic, 2003). Ontogenetic selection accounts for the diverse and complex relationships developed between particular individuals and particular animals over the lifespan of each (i.e., selectivity and variability in the depth of bonding). As a working whole function, the benefits and advantages of the human-animal bond are bidirectional and mutually dependent. Animals generate psychosocial processes (e.g., affection, companionship, recreation, and feelings of wellbeing) and physiological benefits (stress-buffering effects and immune systems boosts) in humans (for more comprehensive reviews, see Barker et al., 2010; Beetz et al., 2012; Gawlinski & Steers, 2005; Kruger & Serpell, 2006; Odendaal, 2000; Odendaal & Meintjes, 2003). In return, humans offer various caretaking benefits (e.g., food, shelter, affection, companionship, and recreation) to animals (Udell & Wynne, 2008).

Animals as Adjunctive Therapeutic Agents of Change

Per the biophilia hypothesis (Kellert & Wilson, 1993; Wilson, 1984), humans and animals have learned to detect signs in each other that predict danger or safety. Discriminative cues associated with each function act as establishing operations for the other, which alter the effectiveness of reinforcers and punishers, and thus the behaviors coordinated with them. To the

extent that certain animals engender a sense of calm in humans, they may be beneficial as adjunctive therapeutic agents of behavior change in therapy. As in, a content animal's presence may signal, "safety, security and feelings of wellbeing which in turn may trigger a state where personal change and healing are possible" (Kellert & Wilson, 1993, p. 31).

In line with the biophilia hypothesis, seeing one content animal (e.g., a therapy dog) be trusting toward and at ease with another (e.g., a human therapist) may transform psychological functions for the observed, in which case the observer (e.g., a therapy client) begins to experience feelings of security through the perception of both the other and the animal as empathic, trustworthy, non-threatening, and as agents of friendly interpersonal exchange (Beetz et al., 2012; Bruneau & Johnson, 2016). This is reflected by research suggesting that AAT facilitates participant disclosure, treatment attendance, compliance, completion, and overall progress compared to non-AAT interventions (Bruneau & Johnson, 2016; Chandler, 2012; Holcomb & Meacham, 1989; Kruger & Serpell, 2006; Lange et al., 2007). These aspects of interaction are essential to rapport building and the therapeutic alliance, two factors known to impact treatment trajectory and therapeutic outcomes (Lambert & Bartley, 2001; Lange et al., 2007).

Animal-Assisted Therapy in Historical Context

The first documented use of AAT occurred in the late 1700s at a progressive mental institution in England called the York Retreat (Serpell, 2015). Samuel Tuke (1813) characterized included resident animals as "the means of [patients'] innocent pleasure" (p. 96). In the 1830s, England's Bethlem Hospital improved conditions by introducing companion animals alongside other advancements (Serpell, 2015). *Illustrated London News* reporter George Augustus Sala (1860) credited these animals as "raising the sometimes drooping spirits and soothing the

troubled minds of the unhappy persons who dwell there" (p. 24) and described patients "pouring out their woes" (p. 32) to resident cats and dogs. Florence Nightingale, the founder of modern nursing practice, observed that pets reduced fear and anxiety in children and adults (Ernst, 2014).

In the 1930s, AAT entered the outpatient therapy room when Sigmund Freud employed his dog Jofi as a co-relational partner in therapy (Ernst, 2014). Later, child psychologist Boris Levinson (1969) witnessed a withdrawn, nonverbal child client spontaneously engage with his companion dog Jingles (Serpell, 2015). This observation led Levinson to coin the term "Pet Therapy," and served as the catalyst for AAT's expansion beyond the use of companion animals simply for patient companionship and recreation in mental institutions (Fine et al., 2015). At present, AAT is applied within various healthcare settings (e.g., community and private practice) and in conjunction with an array of therapeutic orientations and practices (Chandler, 2012).

Current Definition of Animal-Assisted Therapy

AAT is "a goal-oriented, planned and structured therapeutic intervention" (International Association of Human-Animal Interaction Organizations [IAHAIO], 2018, p. 5), wherein therapists strategically incorporate an animal to facilitate the pursuit of measurable treatment goals (Fine et al., 2015). AAT practitioners should familiarize themselves with the practice standards outlined by the IAHAIO (2018; Chandler, 2012). To be included in treatment, therapy dogs should meet certain behavioral qualifications (e.g., be well-tempered, compliant, low in reactivity, and affiliative towards humans). Dog-handler teams must also fulfill any requirements set forth by the treatment setting, which may include completion of canine obedience training (e.g., the American Kennel Club's Canine Good Citizen Test) and/or therapy-specific tests (e.g., registration through Pet Partners) (Chandler, 2012; Fine, 2015).

Why Dogs?

While no research comparing advantages and disadvantages between therapy species could be located by this writer, the use of dogs as therapeutic agents comes with certain advantages over other species of animals. First, the dispositional nature of dogs makes them ideal candidates to serve as therapeutic partners. Dogs are phylogenetically prepared to exhibit "people-pleasing" traits, such as amiability and cooperativeness. (Miklósi & Topál, 2013; Udell & Wynne, 2008). Second, dogs are uniquely skilled in interspecies social responsivity, and notice and respond to a vast range of human signals (e.g., distal pointing, shifts in eye gaze, and body orientation). Dogs react to human excitability and sadness with increased interest and consolatory actions (e.g., subdued body language, nuzzling, and licking). Third, dogs are the most common species of therapy animal (Chandler, 2012), the most popular household pet (American Veterinary Medical Association, 2017), and the most widely portrayed animal in the media (Frigiola, 2009; Jegatheesan, 2015). Fourth, dogs' care needs are minimal compared to other species that require special accommodations (e.g., litterboxes, aquariums, stables, or expansive outdoor space). Finally, dogs boast staggering intraspecies variability (e.g., size and hypoallergenic coats) that encourages optimized fit with participant preferences and clinical settings (VanFleet et al., 2015).

Preliminary research (e.g., Black et al., 2011) suggests that healthcare practitioners and laypeople hold generally positive views of AAT. To illustrate, roughly two-thirds of surveyed Norwegian physicians and psychologists reported a desire to use animal-assisted interventions, and about 90% endorsed that it should be used more frequently in psychiatric treatment (Berget et al., 2013). A 2018 study (Dravsnik et al.) examined caregivers' perceived acceptability of standalone and adjunctive approaches to an evidence-based childhood trauma therapy (i.e., trauma-focused cognitive behavior therapy, or TF CBT). Participants preferred TF CBT with

adjunctive canine-assisted therapy over either standalone treatment or adjunctive psychotropic intervention.

Similarly, the most common adjunctive treatments used with ET involve incorporating psychopharmacological agents, but acceptability is affected by stigma and worry about potential side effects of medication use (Dravsnik et al., 2018). To the extent that dogs function as safety conditions in therapy, they may be useful in overcoming some of the limitations noted earlier with ET (i.e., low tolerability and non-compliance, premature dropout, and post-treatment symptom relapse).

In summary, given the favorable attributes noted above, dogs are an ideal animal to assist in therapy and more likely to be widely accepted for this role than other animals due to their calming effects and relational qualities.

Prolonged Exposure: Procedural Considerations

Foa and associates' (2019) prolonged exposure procedure will be briefly outlined before illustrating how dogs may be introduced into therapy and used as safety conditions during exposure sessions.

Prolonged Exposure

As noted earlier, ET is an adaptable procedure. Implementation can be adjusted according to the specific participant, nature of the presenting problem, and clinical setting. Exposure work begins with a thoroughgoing functional analysis of conditions in which fear responding is embedded (historical / situational), elucidated in terms of antecedent (danger stimuli), behavior (actions taken), and consequence (function / meaning) relations. There are at least six targets of exposure (adapted upon McKay & West, 2016), including *situational (*people, places, things, activities), s*omatic (*bodily sensations), *feeling states* (anxiousness, dampened mood), *perceptual*

(derealization, depersonalization), *cognitive* (thoughts, images, memories, meanings), *protective* (avoiding uncertainty via withdrawing, checking, cleaning, reassurance seeking), and *substitutive* (fidgeting, distraction, busyness, replacement emotions, numbing out, substance use, bingeing, gambling).

Protocol

What follows is a brief description of a procedural variant called prolonged exposure (Foa et al., 2019). Prolonged exposure sessions are typically one-and-a-half hours in length and occur over an eight to 15 week period, with session time divided between pre-exposure discussion (opening preview, 10-15 minutes); imaginal or in vivo induction (non-stop exposure, 45-60 minutes), and post-exposure discussion (processing, 15-20 minutes). In terms of procedure, imaginal exposure induction involves "recounting" (on purpose) aloud and with eyes closed, all the details recalled about the development and maintenance of fear that are experienced as dangerous "now," despite being objectively safe. Components of the functional relation exposed include activating antecedents (CSs / S^Ds, historical and situational reminders), evoked experiences (respondents / operants, sensations, feelings, thoughts, memories, images, meanings, action tendencies), and the feared consequences of not avoiding (R). Subjective units of distress scale (SUDs) ratings may be taken about every 10-15 minutes to gauge the depth of involvement and within-session change in distress. Following completed induction, de-briefing occurs to inquire about the recall of aspects and details of previously unaware experiences, difficulties experienced while staying with distress and action tendencies to escape, and so on. If the participant appears to experience dissociation, the de-briefing phase is used to reorient them to the present setting and time. Between-session work involves listening to an audiotape of the

imaginal exposure session last completed. Following the planned course intervention, booster sessions may be arranged if needed.

For exposure work to generate its optimal effect, the participant must come into direct contact with the personal distress they are struggling against while resisting attempts to escape from it (Foa et al., 2019). Expressing the narrative in present tense language helps to bring past memories into the psychological present. During the exposure phase, the therapist may use invitations, coaching, and encouragers to reinforce the participant's willingness to "presence" experiences evoked while purposely blocking any tendency to negotiate with or avoid the process.

Safety Conditions Revisited

To review, safety stimuli and safety behaviors signal aversion-free periods (Salkovskis, 1991). Therefore, safety conditions function as conditioned inhibitors of psychological distress. Safety behaviors are actions used to deal with actual and perceived threats, wherein the action taken transforms a context of danger into one of safety. Said differently, safety behaviors produce a positive consequence of some kind by (1) removing a punishing stimulus via avoidance-based coping action (e.g., remaining homebound) or (2) producing a reinforcing stimulus via approach action (e.g., leaving home with rescue medication). As previously discussed, when used to manage perceived threat (those not involving objective threat), safety signals and safety behaviors can maintain fear responding (and other forms of psychopathology) and interfere with natural extinction processes (e.g., ET) by inhibiting arousal to feared experiences and the stimuli coordinated with them. In short, safety-seeking responses bring about positive feeling states by attenuating the psychological functions established through an aversive conditioning history. Safety conditions are most detrimental when they block the processing of

corrective threat-disconfirming information, thereby decreasing expectancy violations (Blakey & Abramowitz, 2016; Blakey et al., 2019; Telch & Lancaster, 2012). The unwanted effect is that the use of safety-seeking behaviors aimed at fear reduction leads to a paradoxical increase in the very fear targeted for control and amplifies the fear reliance of danger signals.

Rationale: Judicious Use of Dogs as Safety Conditions

ET is highly effective for treatment completers. However, as previously mentioned, the benefits of ET often go unrealized beyond research settings due to issues with acceptance and inaccessibility, low tolerability and non-compliance, premature dropout, and post-treatment symptom relapse. In response, Rachman and associates (2008) have called for a "reconsideration" of the "judicious use" (p. 171) of safety behaviors in ET, wherein the notion of judicious use means time-limited with early application in treatment to overcome a therapeutic barrier, and then discarded as quickly as possible in favor of prolonged exposure alone.

One argument for the reconsideration of safety behaviors is that, despite being reputed as "ubiquitously deleterious" (Blakey & Abramowitz, 2016, p. 1) to exposure work, the evidence base remains inconclusive (Meulders et al., 2016). While continued research is needed, judiciously used safety behaviors may enhance therapist and client perceptions of acceptability, tolerability, and controllability, and allow therapists to tailor treatment for participants who would otherwise refuse or prematurely drop out of ET (Milosevic & Radomsky, 2008; Rachman et al., 2008).

Another argument for judicious use is that safety behaviors are already regularly incorporated into ET, though often overlooked (Rachman et al., 2008). For instance, ET fear hierarchies are scaled and graduated using SUDs ratings so that exposure feels more predictable and controllable to participants. Common ET modifications could also be relabeled as

judiciously applied safety behaviors in that they are temporarily used to overcome a therapeutic barrier. For example, Foa and colleagues (2019) suggest allowing participants who persistently avoid in vivo exposure homework to lower difficulty by bringing along a trusted companion. When used in this manner, safety signals and safety behaviors may expedite treatment pace (and counteract avoidant attempts to delay exposure) by enabling participants to approach exposure stimuli more quickly and closely (Hood et al., 2010). In addition, use in early treatment may benefit participants who resist when requested to block and discontinue safety behaviors. This adjustment offers a more emotionally palatable path to building perceived self-efficacy, distress tolerance, and access to realistic information about feared antecedents. As confidence and corrective inhibitory conditioning strengthen, participants are likely to abandon safety behaviors and signals while engaging more deliberately and thoroughly in exposure work (Rachman et al., 2008).

Furthermore, evidence suggests that safety conditions moderate inhibitory learning. Contact with inhibitory stimuli not conceptually linked to their feared outcome expectancies is less likely to impede exposure (Hood et al., 2010; Thwaites & Freeston, 2005). Thus, to the extent that therapy dogs function as safety signals, safety behaviors involving interaction with them should have an inhibitory effect on fear without violating outcome expectancies.

Select Applications

There are two adjunctive approaches to incorporating dogs as therapeutic agents in ET. The first involves non-contingent use, and the second, contingent use. These strategies can be used exclusively or in tandem.

Non-Contingent Use. Using the non-contingent approach, therapeutic contact between the client and therapy dog is incidental to the prolonged exposure process proper. The therapy

dog is present, but only in the sense of operating as a background contextual cue. Non-contingent use typically involves non-directive interaction between the therapy dog, therapist, and client. However, the therapy dog should be present for at least 10-15 minutes of the session to allow sufficient time for the client to gain de-arousal and psychosocial benefits to be associated with the therapist, therapy animal, and therapeutic context (Odendaal, 2000; as cited in Lefkowitz et al., 2005). However, if it appears that the client's involvement with the therapy dog distracts from therapeutic work during the induction phase and collection of SUDs ratings, the animal may be repositioned to a less distracting spot. Options for this depend upon the treatment setting, though the dog would ideally be removed from the room or directed to a rest corner located out of the client's direct line of sight.

In terms of the interpersonal context of ET work, the non-contingent use of a therapy dog may facilitate rapport building and information gathering to strengthen the therapeutic alliance, thereby improving participant engagement and treatment attendance, compliance, and completion of therapy (Bruneau & Johnson, 2016; Holcomb & Meacham, 1989; Lambert & Bartley, 2001; Lange et al., 2007; Lefkowitz et al., 2005). In addition, AAT may increase the acceptability of ET, and therefore improve accessibility to clients (Dravsnik et al., 2018).

Contingent Use. Using the contingent approach-h, therapeutic contact between the client and therapy dog is directly available during the induction phase of work. The dog is used intentionally as a safety signal, and the client is encouraged to contact the dog as a safety behavior. The contingent use of a therapy dog is more likely than non-contingent application to interfere with the development of outcome expectancies since safety conditions undermine exposure work when they block the processing of threat-disconfirming information (Salkovskis, 1991; Telch & Lancaster, 2012).

Therefore, a number of safeguards have been proposed to limit this occurrence. This is detailed by Telch and Lancaster (2012), with a summary of steps for therapists as follows: (1) assess core threat, (2) provide a rationale for abandoning safety aids, (3) assess employed safety signals and safety behaviors, (4) devise a fading strategy, (5) advise the client that fading safety aids may increase distress, (6) collaboratively decide upon fading targets, (7) practice fading in session, (8) assess anticipated and actual change in SUDs during induction, (9) contrast core threats against threat-disconfirming information, and (10) assign between session fading exercises.

Post-Imaginal Exposure Processing. Per Foa et al. (2019), the therapist transitions from imaginal exposure induction to post-exposure processing by offering positive feedback, thus acknowledging the client's courage in contacting their fears. A therapy dog's presence may amplify such statements, contribute to the client's perceptions of the therapist as affectionate and empathic, and add a non-human source of affirmation for participating with aversive stimuli (Lange et al., 2007).

In some cases, exposure induction may lead to excessive stimulation, leading the client to a state of derealization, depersonalization, or dissociation. It is known that excessive arousal can interfere with emotional processing and therefore must be regularly assessed (Foa et al., 2019; Parrish et al., 2008). The presence of a therapy dog pre- and post-induction is unlikely to be perceived as a factor preventing the feared outcome, and therefore less likely to disrupt inhibitory learning (Goetz & Lee, 2015). It has also been suggested that direct contact with a therapy dog may facilitate dual-attention stimulation and de-arousal, wherein the client's perceptual focus is divided between different sensory modalities simultaneously (e.g., tactile and visual) (Odendaal, 2000; Odendaal & Meintjes, 2003; Oren & Parish-Plass, 2013). To facilitate

dual attention for dissociative clients during imaginal exposure, Foa et al. (2019) suggest that therapists provide therapeutic touch, verbalizations, or a fidget object. Additionally, therapeutic guides and verbal reinforcers may be used to ground, encourage, and reassure the client of the joint presence and support provided by the therapist and dog ("You are doing fine, stay with the image." [We] know this is difficult for you."). Therapy dogs offer grounding via physical contact (e.g., petting and holding), thereby generating a multi-sensory competing response to excess arousal.

Termination Sessions

The therapist and therapy dog should both be involved in the termination process. During a review of therapy, the therapist may offer supportive feedback that includes reference to the therapy dog as a co-partner. An example provided by Foa et al. (2019) may be amended as "You did a great job with this challenging treatment. [We] have enjoyed working with you" (p. 129). Accordingly, the therapist's reinforcing feedback may be "amplified" by the presence of the dog's non-verbal interactions as an affirming member of the therapy team (Lange et al., 2007).

Ethical Considerations

The practice of CAET should take place with an understanding of ethical considerations and practice standards outlined in the *APA Ethical Principles of Psychologists and Code of Conduct* (2017) and by the IAHAIO (2018), respectively. Additionally, AAT-specific guidelines are available in Appendix B, p. 319 of Chandler's (2012) book *Animal-Assisted Therapy in Counseling*. ET-specific strategies for assessing participant suitability are provided in Foa and colleagues' (2019) manual.

Informed Consent

As in traditional psychotherapy, informed consent should be completed before or at the first meeting. In CAET, informed consent should include potential risk factors of AAT and information about the therapy dog. At a minimum, this includes the dog's training and credentials, relationship to the therapist, therapy activities they may participate in, and the participant's right to refuse CAET in favor of standard ET (Chandler, 2012).

At this time, the therapist may communicate behavior expectations for the participant when interacting with the therapy dog. This includes explaining that illness or fatigue may prevent the dog from attending or participating in every session. The participant must also be instructed to allow the therapy dog to retreat to the designated safe space without attempts for re-engagement (Chandler, 2012). Since CAET involves both non-directive and directive human-animal interaction, the therapist should inform the client about the differences between both styles and state that the participant would be made aware during sessions when either approach is being used.

Participant Screening. Once informed consent is obtained, the participant is screened to ensure CAET suitability. AAT-specific screening may come before, after, or be integrated within standard ET screening. Given the evidence that dogs are especially beneficial in early therapy processes (e.g., trust and rapport building) and when familiar to the participant, it is recommended that AAT screening be prioritized and the therapy dog included as soon as possible (Lefkowitz et al., 2005). However, clinical judgment will be used to ascertain this sequence since there are certainly cases when this would be inappropriate.

General participant requirements include openness to working with a dog, no history of animal mistreatment or abuse, and the capability to act in a manner that ensures all involved participants' safety. The participant must also be screened for physical and psychological

concerns (e.g., allergies, immunosuppression, or fear of dogs) that could render CAET unsuitable or require another intervention (e.g., allergy medicine) before initiating treatment. If fear of dogs is present, the participant may rightfully refuse to work with a therapy dog. However, the therapist might encourage use if that fear directly relates to presenting concerns (e.g., specific phobia of dogs) and could be incorporated as part of an ET protocol. In these cases, a dog would be used as a fear-evoking CS for in vivo therapeutic work.

When a participant feels ambivalent about using a therapy dog, Lefkowitz and colleagues (2005) recommend encouraging participants to attend one CAET session since that typically leads them to agree to participate in treatment. Furthermore, participants who prefer to meet the dog before committing to CAET should be allowed to do so.

Companion Animal Screening. When available, a participant's companion animal may be judiciously used as a safety signal during exposure homework assignments (Lefkowitz et al., 2005). For resistant clients, being accompanied by an animal "coach" may facilitate treatment pace and enable their willingness and motivation to undertake in vivo exposure. This opens up opportunities to conduct more exposures in as many contexts as possible, thereby possibly decreasing post-treatment behavior relapse.

Prior to involving a companion animal, therapists should first screen the animal to ensure that it is well behaved enough to avoid distracting from exposure or jeopardizing the wellbeing of itself, the participant, or any bystanders. This may be determined through a combination of expertise in ET, AAT, and canine behavior. The participant's companion dog need not qualify as a therapy animal but should meet basic behavior standards to function as a safety signal. The participant should feel comfortable in the companion dog's presence. The therapist may ask questions to determine if the participant generally feels positively or negatively about their dog,

if the dog might feel stressed in potential exposure settings, and if the dog has ever shown aggression.

It is of paramount importance for the therapist to ensure that CAET is not conducted at the expense of the physical or emotional safety of the dog, participant, or potential bystanders (Ng et al., 2015). Since exposure assignments differ by participant, the therapist must ask questions specific to each fear hierarchy to ensure the dog's wellbeing, therapeutic utility, and appropriateness across anticipated exposure settings. For instance, a dog accompanying an agoraphobic participant on a public outing in an urban area must be comfortable with that setting (e.g., loud noises, various smells, and other dogs and people). Therapists must also confirm that exposure settings allow non-service dogs and if so, that a dog's presence would not be inappropriate or dangerous. When an exposure assignment does not fulfill those standards, the dog cannot be allowed to participate.

The participant and companion dog may test suitability by conducting several practice sessions that mimic the exposure setting. Doing so might allow the participant to see if the dog feels stressed or causes the participant more stress. The client should also receive education to recognize and respond appropriately to non-verbal cues of stress in dogs. In doing so, the client becomes able to monitor for signs that the dog needs a break to have a basic need met (e.g., food, water, rest, and bathroom needs) or is not able to tolerate continued therapy involvement.

Animal Care

To protect the therapy dog's wellbeing, the therapist must ensure regular veterinary care, a comfortable rest area that the dog may retreat to during sessions, prioritization of basic needs (e.g., food, water, rest, bathroom needs, and exercise), and a limited number of sessions per day (Ng et al., 2015). Participants should be reminded that both companion and therapy dogs are not

always available (for instance, due to illness, fatigue, and dislike of certain contexts) to assist with therapy. When judicious safety behaviors are allowed, a "back-up" safety behavior or lower SUDs exposure may be selected in place of CAET-specific modification.

Conclusion

Given the prevalence of fear-related disorders and their disruptive impact on the daily functioning of affected individuals, it is critical that evidence-based interventions are viewed as acceptable and made accessible for use by therapists and clients. The most efficacious therapy for fear-based responding is ET (specifically, prolonged exposure), which emphasizes repeated contact with activating stimuli to activate corrective inhibitory associative learning (Abramowitz, 2013). However, since a full course of ET must be completed to attain positive outcomes, current limitations in its use must be addressed. At present, concerns pertain to ET's low tolerability, poor treatment compliance and completion rates, and potential for post-treatment symptom relapse (Altschuler, 1999; Dravsnik et al., 2018; Lefkowtiz et al., 2005; Rachman et al., 2008). CAET and the judicious use of dogs as therapeutic agents offer some solution to existing concerns that surround ET and its real-world applications. Safety conditions (i.e., safety signals and safety behaviors) do have a place in exposure programming early in therapy. The cautionary proviso is that they eventually must be faded out of therapy, as safety aids undermine exposure work when they block the processing of threat-disconfirming information (Salkovskis, 1991; Telch & Lancaster, 2012).

References

Abramowitz, J. S. (2013). The practice of exposure therapy: Relevance of cognitive behavioral theory and extinction theory. *Behavior Therapy, 44*(4), 548–558. https://doi.org/10.1016/j.beth.2013.03.003

Altschuler, E. L. (1999). Pet-facilitated therapy for posttraumatic stress disorder. *Annals of Clinical Psychiatry*, *11*(1), 29–30. https://doi.org/10.3109/10401239909147045

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

American Veterinary Medical Association. (2017). *U.S. pet ownership statistics.* https://www.avma.org/resources-tools/reports-statistics/us-pet-ownership-statistics

Augustus Sala, G. (1860, March). A visit to the Royal Hospital of Bethlehem. *The Illustrated London News,* pp. 24-32.

Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. *Dialogues in Clinical Neuroscience, 17*(3), 327-335.

Barker, S. B., Knisely, J. S., McCain, N. L., Schubert, C. M., & Pandurangi, A. K. (2010). Exploratory study of stress-buffering response patterns from interaction with a therapy dog. *Anthrozoös, 23*, 79-91. https://doi.org/10.2752/175303710X12627079939341

Barlow, D. H. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed.). The Guilford Press.

Baxter, A. J., Scott, K. M., Vos, T., & Whiteford, H. A. (2013). Global prevalence of anxiety disorders: A systematic review and meta-regression. *Psychological Medicine*, *43*(5), 897–910. https://doi.org/10.1017/s003329171200147x

Becker, C. B., Zayfert, C., & Anderson, E. (2004). A survey of psychologists' attitudes towards and utilization of exposure therapy for PTSD. *Behavior Research and Therapy*, *42*(3), 277–292. https://doi.org/10.1016/s0005-7967(03)00138-4

Beetz, A., Uvnäs-Moberg, K., Julius, H., & Kotrschal, K. (2012). Psychosocial and psychophysiological effects of human-animal interactions: The possible role of oxytocin. *Frontiers in Psychology*, *3*, 234. https://doi.org/10.3389/fpsyg.2012.00234

Berget, B., Grepperud, S., Aasland, O., & Braastad, B. (2013). Animal-assisted interventions and psychiatric disorders: Knowledge and attitudes among general practitioners, psychiatrists, and psychologists. *Society & Animals*, *21*(3), 284-293. https://doi.org/10.1163/15685306-12341244

Black, A. F., Chur-Hansen, A., & Winefield, H. R. (2011). Australian psychologists' knowledge of and attitudes towards animal-assisted therapy. *Clinical Psychology*, *15*(2), 69–77. https://doi.org/10.1111/j.1742-9552.2011.00026.x

Blakey, S. M., & Abramowitz, J. S. (2016). The effects of safety behaviors during exposure therapy for anxiety: Critical analysis from an inhibitory learning perspective. *Clinical Psychology Review*, *49*, 1–15. https://doi.org/10.1016/j.cpr.2016.07.002

Blakey, S. M., Abramowitz, J. S., Buchholz, J. L., Jessup, S. C., Jacoby, R. J., Reuman, L., & Pentel, K. Z. (2019). A randomized controlled trial of the judicious use of safety behaviors during exposure therapy**.** *Behaviour Research and Therapy, 112*, 28-35. https://doi.org/10.1016/j.brat.2018.11.010

Böhnlein, J., Altegoer, L., Muck, N. K., Roesmann, K., Redlich, R., Dannlowski, U., & Leehr, E. J. (2020). Factors influencing the success of exposure therapy for specific phobia: A

systematic review. *Neuroscience and Biobehavioral Reviews, 108*, 796–820. https://doi.org/10.1016/j.neubiorev.2019.12.009

Bouton, M. E. (1988). Context and ambiguity in the extinction of emotional learning: implications for exposure therapy. *Behaviour Research and Therapy, 26*(2), 137–149. https://doi.org/10.1016/0005-7967(88)90113-1

Bouton, M. E. (2014). Why behavior change is difficult to sustain. *Preventive Medicine, 68*, 29-36. https://doi.org/10.1016/j.ypmed.2014.06.010

Bouton, M. E., & Bolles, R. C. (1979). Role of conditioned contextual stimuli in reinstatement of extinguished fear. *Journal of Experimental Psychology, 5*(4), 368–378. https://doi.org/10.1037//0097-7403.5.4.368

Bruneau, L., & Johnson, A. (2016). Fido and Freud meet: Integrating animal-assisted therapy with counseling theory. *Ideas and Research You Can Use: VISTAS 2016, 14,* 1-14.

Carpenter, J. K., Andrews, L. A., Witcraft, S. M., Powers, M. B., Smits, J., & Hofmann, S. G. (2018). Cognitive behavioral therapy for anxiety and related disorders: A meta-analysis of randomized placebo-controlled trials. *Depression and Anxiety*, *35*(6), 502–514. https://doi.org/10.1002/da.22728

Chandler, C. K. (2012). *Animal assisted therapy in counseling* (2nd ed.). Routledge/Taylor & Francis Group.

Chiesa, M. (1994). *Radical behaviorism*: *The philosophy and the science*. Authors Cooperative Inc. Publishers.

Choy, Y., Fyer, A. J., & Lipsitz, J. D. (2007). Treatment of specific phobia in adults. *Clinical Psychology Review*, *27*(3), 266–286. https://doi.org/10.1016/j.cpr.2006.10.002

Christianson, J. P., Fernando, A. B., Kazama, A. M., Jovanovic, T., Ostroff, L. E., & Sangha, S. (2012). Inhibition of fear by learned safety signals: A mini-symposium review. *The Journal of Neuroscience, 32*(41), 14118–14124. https://doi.org/10.1523/JNEUROSCI.3340-12.2012

Clark, D. M. (1999). Anxiety disorders: Why they persist and how to treat them. *Behaviour Research and Therapy*, *37*(1), 5–27. https://doi.org/10.1016/S0005-7967(99)00048-0

Cox, B. J., Endler, N. S., Lee, P. S., & Swinson, R. P. (1992). A meta-analysis of treatments for panic disorder with agoraphobia: Imipramine, alprazolam, and in vivo exposure. *Journal of Behavior Therapy and Experimental Psychiatry, 23*(3), 175–182. https://doi.org/10.1016/0005-7916(92)90034-G

Craske, M. G., & Mystkowski, J. L. (2006). Exposure therapy and extinction: Clinical studies. In M. G. Craske, D. Hermans, & D. Vansteenwegen (Eds.), *Fear and learning: From basic processes to clinical implications* (pp. 217–233). American Psychological Association. https://doi.org/10.1037/11474-011

Craske, M. G., Treanor, M., Conway, C. C., Zbozinek, T., & Vervliet, B. (2014). Maximizing exposure therapy: An inhibitory learning approach. *Behaviour Research and Therapy, 58,* 10–23. https://doi.org/10.1016/j.brat.2014.04.006

DeVane, C. L., Chiao, E., Franklin, M., & Kruep, E. J. (2005). Anxiety disorders in the 21st century: Status, challenges, opportunities, and comorbidity with depression. *The American Journal of Managed Care*, *11*(12), 344–S353.

Donahoe, J. W., & Palmer, D. C. (1994). *Learning and complex behavior.* Allyn and Bacon.

Donahoe, J. W., Palmer, D. C., & Burgos, J. E. (1997). The unit of selection: What do reinforcers reinforce? *Journal of the Experimental Analysis of Behavio*r, *67*(2), 259-273. https://doi.org/10.1901/jeab.1997.67-259

Donahoe, J. W., & Vegas, R. (2011). Respondent (Pavlovian) conditioning. In W. W. Fisher, C. C. Piazza, & H. S. Roane (Eds.), *The handbook of applied behavior analysis* (2nd ed., pp.1-23). The Guilford Press.

Dravsnik, J., Signal, T., & Canoy, D. (2018). Canine co-therapy: The potential of dogs to improve the acceptability of trauma-focused therapies for children. *Australian Journal of Psychology, 70*(3), 208-216. https://doi.org/10.1111/ajpy.12199

Ernst, L. (2014). Animal-assisted therapy: An exploration of its history, healing benefits, and how skilled nursing facilities can set up programs. *Annals of Long-Term Care*: *Clinical Care and Aging*, *22*(10), 27-32.

Feske, U., & Chambless, D. L. (1995). Cognitive behavioral versus exposure only treatment for social phobia: A meta-analysis. *Behavior Therapy*, 26, 695–720. https://doi.org/10.1007/s10942-006-0024-3

Fine, A. H., Tedeschi, P., & Elvove, E. (2015). Forward thinking: The evolving field of human-animal interactions. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (4th ed., pp. 21-35). Academic Press.

Fine, A. H. (2015). Incorporating animal-assisted interventions into psychotherapy: Guidelines and suggestions for therapists. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (4th ed., pp. 141-155). Academic Press.

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, 99, 20–35.

Foa, E. B., Hembree, E. A., & Rothbaum, B. O. (2019). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences, therapist guide* (2nd ed.). Oxford University Press.

Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., Huppert, J. D., Kjernisted, K., Rowan, V., Schmidt, A. B., Simpson, B., & Tu, X. (2005). Randomized, placebo-controlled trial of exposure and ritual prevention, clomipramine, and their combination in the treatment of obsessive-compulsive disorder. *The American Journal of Psychiatry, 162*(1), 151–161. https://doi.org/10.1176/appi.ajp.162.1.151

Franklin, M. E., & Foa, E. B. (1998). Cognitive behavioral treatments for obsessive-compulsive disorder. In P. E. Nathan & J. M. Gorman (Eds.), *A guide to treatments that work* (pp. 339–357). Oxford University Press.

Frigiola, H. N. (2009). *The meanings of dogs and cats in U.S. American culture based on movies, cartoons, and consumer goods* [Unpublished master's thesis]. Purdue University.

Gawlinski, A., & Steers, N. (2005). Dogs ease anxiety, improve health status of hospitalized heart failure patients [Abstract]. American Heart Association, 2513.

Goetz, A. R., & Lee, H. (2015). The effects of preventive and restorative safety behaviors on a single-session of exposure therapy for contamination fear. *Journal of Behavior Therapy and Experimental Psychiatry, 46*, 151–157. https://doi.org/10.1016/j.jbtep.2014.10.003

Harned, M. S., Dimeff, L. A., Woodcock, E. A., & Contreras, I. (2013). Predicting adoption of exposure therapy in a randomized controlled dissemination trial. *Journal of Anxiety Disorders, 27*(8), 754–762. https://doi.org/10.1016/j.janxdis.2013.02.006

Hayes, L. J. (1992). The psychological present. *The Behavior Analyst, 15*(2), 139-145. https://doi.org/10.1007/BF03392596

Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change.* The Guilford Press.

Hayes, S. C., Niccolls, R., Masuda, A., & Rye, A. K. (2002). Prejudice, terrorism, and behavior therapy. *Cognitive and Behavioral Practice, 9*(4), 296-301.

Hembree, E. A., Foa, E. B., Dorfan, N. M., Street, G. P., Kowalski, J., & Tu, X. (2003). Do patients drop out prematurely from exposure therapy for PTSD? *Journal of Traumatic Stress, 16*(6), 555–562. https://doi.org/10.1023/B:JOTS.0000004078.93012.7d

Holcomb, R., & Meacham, M. (1989). Effectiveness of an animal-assisted therapy program in an inpatient psychiatric unit. *Anthrozoös, 2*(4), 259–264. https://doi.org/10.2752/089279389787057902

Hood, H. K., Antony, M. M., Koerner, N., & Monson, C. M. (2010). Effects of safety behaviors on fear reduction during exposure. *Behavior Research and Therapy, 48*(12), 1161–1169. https://doi.org/10.1016/j.brat.2010.08.006

International Association of Human-Animal Interaction Organizations. (2018). The IAHAIO definitions for animal assisted intervention and guidelines for wellness of animals involved in AAI [White paper]. https://iahaio.org/best-practice/white-paper-on-animal-assisted-interventions/

Jegatheesan, B. (2015). Influence of cultural and religious factors on attitudes towards animals. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (4th ed., pp. 37-41). Academic Press.

Kellert, S. R. & Wilson, E. O. (1993). *The biophilia hypothesis*. Island Press.

Kessler R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research, 21*(3), 169–184.

Kruger, K. A., & Serpell, J. A. (2006). Animal-assisted interventions in mental health: Definitions and theoretical foundations. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (3rd ed., pp. 21-38). Academic Press.

Lambert, M. J., & Bartley, D. E. (2001). Research summary on the therapeutic relationship and psychotherapy outcome. *Psychotherapy: Theory, Research, Practice, Training, 38*(4), 357–361. https://doi.org/10.1037/0033-3204.38.4.357

Lang, P. J. (1979). A bio-informational theory of emotional imagery. *Psychophysiology*, *16*(6), 495-512. https://doi.org/10.1111/j.1469-8986.1979.tb01511.x

Lange, A. M., Cox, J. A., Bernert, D. J., & Jenkins, C. D. (2007). Is counseling going to the dogs? An exploratory study related to the inclusion of an animal in group counseling with adolescents. *Journal of Creativity in Mental Health, 2*(2), 17-31. https://doi.org/10.1300/J456v02n02_03

Laraway, S., Snycerski, S., Michael, J., & Poling, A. (2003). Motivating operations and terms to describe them: Some further refinements. *Journal of Applied Behavior Analysis, 36*(3), 407-414. https://doi.org/10.1901/jaba.2003.36-407

Lefkowitz, C., Prout, M., Bleiberg, J., Paharia, I., & Debiak, D. (2005). Animal-assisted prolonged exposure: A treatment for survivors of sexual assault suffering posttraumatic

stress disorder. *Society & Animals, 13*(4), 275–295. https://doi.org/10.1163/156853005774653654

Levinson, B. M. (1969). *Pet-oriented child psychotherapy.* Charles. C. Thomas.

McKay, M., & West, A. (2016). *Emotion efficacy therapy: A brief, exposure-based treatment for emotion regulation integrating ACT and DBT.* Context Press/New Harbinger Publications.

Meulders, A., Van Daele, T., Volders, S., & Vlaeyen, J. W. (2016). The use of safety-seeking behavior in exposure-based treatments for fear and anxiety: Benefit or burden? A meta-analytic review. *Clinical Psychology Review, 45*, 144–156. https://doi.org/10.1016/j.cpr.2016.02.002

Miklósi, A., & Topál, J. (2013). What does it take to become 'best friends'? Evolutionary changes in canine social competence. *Trends in Cognitive Sciences, 17*(6), 287-294. ttps://doi.org/10.1016/j.tics.2013.04.005

Milosevic, I., & Radomsky, A. S. (2008). Safety behaviour does not necessarily interfere with exposure therapy. *Behaviour Research and Therapy 46*, 1111-1118. https://doi.org/10.1016/j.brat.2008.05.011

Milosevic, I., & Radomsky, A. S. (2013). Incorporating the judicious use of safety behavior into exposure-based treatments for anxiety disorders: A study of treatment acceptability. *Journal of Cognitive Psychotherapy, 27*(2), 155–174. https://doi.org/10.1891/0889-8391.27.2.155

Najavits, L. M. (2015). The problem of dropout from "gold standard" PTSD therapies. *F1000Prime Reports, 7*, 43. https://doi.org/10.12703/P7-43

National Geographic. (2003, February 20). *When did "modern" behavior emerge in humans?* http://news.nationalgeographic.com/news/2003/02/0220_030220_humanorigins2.html

Ng, Z., Albright, J., Fine, A. H., & Peralta, J. (2015). Our ethical and moral responsibility: Ensuring the welfare of therapy animals. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (4th ed., pp. 357-376). Academic Press.

Odendaal, J. S. (2000). Animal-assisted therapy: Magic or medicine? *Journal of Psychosomatic Research, 49*(4), 275–280. https://doi.org/10.1016/s0022-3999(00)00183-5

Odendaal, J. S., & Meintjes, R. A. (2003). Neurophysiological correlates of affiliative behaviour between humans and dogs. *Veterinary Journal, 165*(3), 296-301. https://doi.org/10.1016/s1090-0233(02)00237-x

Olatunji, B. O., Deacon, B. J., & Abramowitz, J. S. (2009). The cruelest cure? Ethical issues in the implementation of exposure-based treatments. *Cognitive and Behavioral Practice, 16*(2), 172–180. https://doi.org/10.1016/j.cbpra.2008.07.003

Oren, D., & Parish-Plass, N. (2013). The integration of animals into the therapy process and its implications as a unique medium in psychotherapy. In N. Parish-Plass (Ed.), *Animal-assisted psychotherapy: Theory, issues, and practice* (pp. 3-45). Purdue University Press.

Palmer, D. C. (2009). The role of private events in the interpretation of complex behavior. *Behavior and Philosophy*, *37*, 3-19.

Palmer, D. C., & Donahoe, J. W. (1992). Essentialism and selectionism in cognitive science and behavior analysis. *American Psychologist, 47,* 1344-1358.

Parrish, C. L., Radomsky, A. S., & Dugas, M. J. (2008). Anxiety-control strategies: Is there room for neutralization in successful exposure treatment? *Clinical Psychology Review*, *28*(8), 1400–1412.

Rachman, S. (1980). Emotional processing. *Behaviour Research and Therapy, 18*(1), 51–60. https://doi.org/10.1016/0005-7967(80)90069-8

Rachman, S., Radomsky, A. S., & Shafran, R. (2008). Safety behaviour: A reconsideration. *Behaviour Research and Therapy*, *46*(2), 163-173. https://doi.org/10.1016/j.brat.2007.11.008

Rescorla, R. A., & Heth, C. D. (1975). Reinstatement of fear to an extinguished conditioned stimulus. *Journal of Experimental Psychology: Animal Behavior Processes, 1*(1), 88–96. https://doi.org/10.1037/0097-7403.1.1.88

Rothbaum, B. O., Meadows, E. A., Resnick. P., & Foy, D. (2000). Cognitive behavioral therapy. In E. B. Foa, T. M. Keane, M. J. Friedman & J. A. Cohen (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed., pp. 60-83). The Guilford Press.

Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and panic: A cognitive account. *Behavioural Psychotherapy, 19*(1), 6–19. https://doi.org/10.1017/S0141347300011472

Serpell, J. A. (2015). Animal-assisted interventions in historical perspective. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (4th ed., pp. 11-18). Academic Press.

Skinner, B. F. (1981). Selection by consequences. *Science, 213*(4507), 501–504. https://doi.org/10.1126/science.7244649

Stanley, M. A., & Turner, S. M. (1995). Current status of pharmacological and behavioral treatment of obsessive-compulsive disorder. *Behavior Therapy, 26*(1), 163–186. https://doi.org/10.1016/S0005-7894(05)80089-9

Telch, M. J., & Lancaster, C. L. (2012). Is there room for safety behaviors in exposure therapy for anxiety disorders? In P. Neudeck & H. U. Wittchen (Eds.), *Exposure therapy: Rethinking the model, refining the method* (pp. 313–334). Springer Science + Business Media. https://doi.org/10.1007/978-1-4614-3342-2_18

Thwaites, R., & Freeston, M. H. (2005). Safety-seeking behaviours: Fact or function? How can we clinically differentiate between safety behaviours and adaptive coping strategies across anxiety disorders? *Behavioural and Cognitive Psychotherapy*, *33*(2), 177-188. https://doi.org/10.1017/S1352465804001985

Tuke, S. (1813). *Description of the retreat: An institution near York for insane persons of the Society of Friends.* Dawsons.

Udell, M. A., & Wynne, C. D. (2008). A review of domestic dogs' (Canis familiaris) human-like behavior: Or why behavior analysts should stop worrying and love their dog. *Journal of the Experimental Analysis of Behavior, 89*(2), 247-261. https://doi.org/10.1901/jeab.2008.89-247

Van Etten, M. L., & Taylor, S. (1998). Comparative efficacy of treatments for post-traumatic stress disorder: A meta-analysis. *Clinical Psychology & Psychotherapy*, *5*(3), 126–144. http://dx.doi.org/10.1002/(SICI)1099-0879(199809)5:3<126::AID-CPP153>3.0.CO;2-H

van Minnen, A., Hendriks, L., & Olff, M. (2010). When do trauma professionals choose exposure therapy for PTSD patients? A controlled study of therapist and patient factors.

Behaviour Research and Therapy, *48*(4), 312–320. https://doi.org/10.1016/j.brat.2009.12.003

VanFleet, R., Fine, A. H., O'Callagahn, D., Mackintosh, T., & Gimeno, J. (2015). Application of animal-assisted intervention in professional settings: An overview of alternatives. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Foundations and guidelines for animal-assisted interventions* (4th ed., pp. 157-177). Academic Press.

Weisman, J. S., & Rodebaugh, T. L. (2018). Exposure therapy augmentation: A review and extension of techniques informed by an inhibitory learning approach. *Clinical Psychology Review*, *59*, 41-51. https://doi.org/10.1016/j.cpr.2017.10.010

Whittal, M. L., Thordarson, D. S., & McLean, P. D. (2005). Treatment of obsessive-compulsive disorder: Cognitive behavior therapy vs. exposure and response prevention. *Behaviour Research and Therapy*, *43*(12), 1559–1576. https://doi.org/10.1016/j.brat.2004.11.012

Wilson, E. O. (1984). *Biophilia: The human bond with other species*. Harvard University Press.

Wolitzky-Taylor, K., Fenwick, K., Lengnick-Hall, R., Grossman, J., Bearman, S. K., Arch, J., Miranda, J., & Chung, B. (2018). A preliminary exploration of the barriers to delivering (and receiving) exposure-based cognitive behavioral therapy for anxiety disorders in adult community mental health settings. *Community Mental Health Journal*, *54*(7), 899–911. https://doi.org/10.1007/s10597-018-0252-x

Zayfert, C., Deviva, J. C., Becker, C. B., Pike, J. L., Gillock, K. L., & Hayes, S. A. (2005). Exposure utilization and completion of cognitive behavioral therapy for PTSD in a "real world" clinical practice. *Journal of Traumatic Stress*, *18*(6), 637–645. https://doi.org/10.1002/jts.20072