THE EFFECTS OF A THOUGHT FIELD THERAPY STRESS REDUCTION PROTOCOL ON THE STRESS AND EMPATHY LEVELS OF PARENTS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

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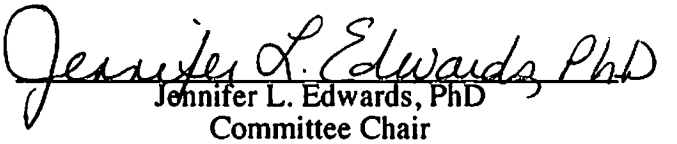

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The Effects of a Thought Field Therapy Stress Reduction Protocol on the Stress and Empathy Levels of Parents of Children with Autism Spectrum Disorder

by

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Abstract

The effects of a stress reduction Thought field therapy protocol vs. a control-stimulation protocol on general stress, parenting stress, and empathy (perspective taking) were explored in this mixed-model, randomized control study. Parents of children with autism, from Israel and the USA, showed reduced general stress and an increase in perspective taking following the intervention, as measured by self-reports. Parenting stress partially mediated the effect of TFT on perspective taking. There were no additional changes during the follow-up period. Participants with personality characteristics of the broad autism phenotype presented at baseline higher general and parenting-related stress scores, and lower perspective taking scores, regardless of their intervention group. The finding suggests that perspective taking is part of the broad autism phenotype. TFT was effective, regardless of participants' BAP status.

Key words: Thought Field Therapy, TFT, Stress, Parenting Stress, Empathy, Perspective Taking, ASD, Autism, Parents of Children with Autism, Broad Autism Phenotype, BAP

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CHAPTER ONE

INTRODUCTION

Parents of children with autism spectrum disorder (P-ASD) were previously found to experience more stress compared to parents of neurotypical children and parents of children with other medical or developmental challenges (Dabrowska & Pisula, 2010; Hayes & Watson, 2013; Zablotsky et al., 2013). Their sources of stress vary and might be related to parenting, resulting from the separate or combined impact of child-related, parent-related (Falk et al., 2014; Yorke et al., 2018; Zaidman-Zait et al., 2017), and relational factors (Totsika et al., 2011; Yorke et al., 2018; Zaidman-Zait et al., 2017). The stressors, however, might be general and unrelated to parenting a child with ASD (Quintero & McIntyre, 2010), such as financial stress, work-related stress, or lack of social support. Stress negatively impacts immunity and health (Godbout & Glaser, 2006), cognitive abilities (Friedel et al., 2017; Reyes et al., 2015), and relationships (Coyl et al., 2002; Randall & Bodenmann, 2009). Therefore, researchers have recommended that stress reduction strategies for P-ASD be incorporated into treatment plans and intervention programs (Hastings & Beck, 2004; Lindo et al., 2016; Osborne et al., 2008a; Osborne & Reed, 2010; G.H.S. Singer et al., 2007). Thought field therapy (TFT), the intervention used in this study, is an evidence-based technique found to help people experiencing different psychological situations, including types of stress (Sakai et al., 2001). There are still, however, questions regarding the mechanism for change (Ruden, 2005).

Empathy is a multidimensional construct, referring to the affective response facing another person's emotional state or condition (Eisenberg, 2000), as well as the cognitive response to it (Walter, 2012; Wolf et al., 2015). In only a limited number of studies,

researchers attempted to explore the relationship between stress reduction (as opposed to stress increase) and empathy. They suggested that stress reduction either increased empathy (Bazarko et al., 2013; Beddoe & Murphy, 2004; Decety & Jackson, 2006) or did not create change (Galantino et al., 2005). Hence, additional study is needed to understand the relationship between stress reduction and empathy. To contribute to this discussion, levels of stress and empathy of P-ASD were measured pre- and post- intervention, and at follow-up.

A third avenue of exploration is related to subclinical traits of autism, known as the broad autism phenotype (BAP), presented by relatives of people with ASD, including parents (Rubenstein & Chawla, 2018; Sucksmith et al., 2011). Experiencing these subclinical traits might create greater sensitivity of P-ASD to the impact of stress (Ingersoll & Hambrick, 2011). There is no agreement among researchers as to whether deficits in empathic abilities are part of the BAP (Jamil, 2016). Thus, the relationship between BAP, stress, and empathy was further addressed in this study.

Statement of the Problems

Three areas of interest were explored in this work. The first regards the effect of TFT on stress and empathy of P-ASD, and the necessity of stimulating acupoints to achieve that effect. P-ASD experience high levels of stress related and unrelated to parenting. However, many studies have measured only parenting-related stress (Falk et al., 2014; Lecavalier et al., 2006), and clinical interventions were not necessarily tailored to address the stressor identified by the parents (Falk et al., 2014). TFT is a self-administered stress reduction technique that can help the parent cope with the stressors that are most relevant at the moment of intervention, either general or parenting related. Reducing stress levels, and/or improving empathy, might support physical and mental health of P-ASD, as well as improve

their relationships with others. A thought field therapy tapping protocol, which has not been previously studied with P-ASD for stress reduction, nor has its effect on empathy previously been studied, to the best of my knowledge, is potentially such a tool. Additionally, clinicians and researchers who utilize TFT believe that stimulating acupoints in a specific order during tapping is necessary (Ruden, 2005). However, support for this claim is not well established. Inconsistent evidence regarding the advantage of following an acupoint-stimulating-protocol (TFT) compared to stimulating acupoints unrelated to a specific protocol, or not stimulating acupoints at all, was previously explained by methodological (Baker et al., 2009) or situational reasons (Reynolds, 2010). Thus, the necessity of tapping on acupoints in a specific order, if at all, is still not established.

The second area I explored was the relationship between stress reduction and empathy, specifically the role of stress as a mediator for empathy. This relationship is an understudied topic with non-conclusive findings (Bazarko et al., 2013; Beddoe & Murphy, 2004; Galantino et al., 2005; Martin et al., 2015) and will be further addressed in this work. Additionally, the relationship between having BAP characteristics, stress, and empathy is still a matter for study, separately and combined. Having BAP characteristics might pose higher risk for stress, yet the relationship between BAP and stress is rarely explored in P-ASD. As for empathy, researchers are not in agreement if deficits in empathic abilities are characteristic of the BAP (Jamil, 2016), although difficulties in empathic abilities have been demonstrated in people with ASD (Grove et al., 2014; Sucksmith et al., 2011).

Purpose of the Study

This study was designed with a few goals in mind. The first goal regarded the stress reduction technique used in this study, TFT. Specifically, the goal was to determine whether

TFT promoted a general stress reduction and/or parenting stress reduction, and/or an increase in perspective taking (as an empathy measure) in P-ASD over a 2-week (post-intervention) and 6-week (follow-up) period. Two protocols were utilized. The TFT protocol included a sequence of acupoints to be stimulated following a previously identified order. The protocol for the control-stimulation condition did not target acupoints. The second goal was to add to the limited knowledge about the relationship between stress reduction and empathy, as was observed during a 2-week and 6-week period. The third goal pertained to expanding the understanding of the effects that possessing BAP characteristics might have on stress levels and empathic abilities.

Research Questions

The research questions for this study were

1. How does applying a stress reduction sequence—a formal TFT protocol vs. control-stimulation, impact the stress and empathy levels of P-ASD over time?
2. Does stress reduction mediate the effect of the interventions on empathy (if an effect is found)?
3. How does having BAP characteristics above a cutoff score (BAP-AC) affect the stress and empathy levels of P-ASD compared to those with below-cutoff BAP characteristics (BAP-BC)?

Significance of the Study

The findings of the study have both real-life implications and theoretical implications. This was the first tapping study (either TFT or emotional freedom technique, a technique born of TFT) to my knowledge, to include P-ASD. I found that practicing TFT reduced general stress and increased perspective taking. Since the intervention conditions differed on

the tapping location (stimulating acupoints vs. not stimulating acupoints), this supports the notion that tapping on acupoints is central to TFT. Additionally, general stress, but not parenting stress, was reduced. While the different possible reasons for this finding are discussed, this finding should encourage researchers and clinicians to identify the sources of stress parents experience, prior to intervention. This was also the first time to my knowledge that a tapping protocol was used to assess effects on perspective taking as a form of empathy. As mentioned, perspective taking increased. Additionally, I found that stress reduction partially mediated this relationship.

Stress reduction via TFT is a non-invasive, easy to use, self-help tool that can easily be integrated into daily practice and treatment plans, supporting parents' functioning, health, and relationships. As a cost-effective treatment, it might have an impact on reducing medical expenses (Bach et al., 2019; Nicosia et al., 2019).

Finally, the findings support the notion that perspective taking, as a measure of empathy, is a characteristic of the BAP. However, contrary to the presentation of people with ASD, there was no support for an advantage of emotional empathy over cognitive empathy for P-ASD who presented with personality and social characteristics of the BAP (as measured by the BAPQ).

Theoretical Framework

The theory behind energy psychology methods is still being developed and it combines elements of cognitive-behavioral psychology (conditioning and desensitization), together with energy processes, which occur through stimulation of acupoints (Ruden, 2005). More on the theoretical framework can be found in Chapter 2, the literature review.

Another focus of the study was the possible contribution of BAP characteristics to the

stress and empathy experienced by P-ASD. Cognitive (Decety, 2010; Grove et al., 2014) and personality characteristics have been found to be part of the BAP (Hurley et al., 2007). The empathy imbalance hypothesis attempts to explain the rigid, repetitive behaviors of autism as resulting from a gap between two empathy abilities–high affective empathy but low cognitive empathy. This potentially creates regulation challenges (Smith, 2009). This theory as it relates to BAP is included in Chapter 2.

Summary

The general and parenting-related stress levels and empathy abilities of P-ASD were measured before and after a TFT stress reduction intervention, and at follow-up. To my knowledge, the effect of TFT on empathy was not previously studied, and TFT has never been utilized with P-ASD. TFT was compared to a control-stimulation intervention. The necessity of stimulating acupoints, the relationship between stress reduction and empathy, and the effect of having BAP characteristics on stress and empathy were assessed.

In the following chapters, I will present a review of the literature (Chapter 2), the methodology (Chapter 3), and the results of this study (Chapter 4). Finally, I will discuss findings, limitations, and future directions (Chapter 5).

CHAPTER TWO

REVIEW OF THE LITERATURE

I will first review characteristics of ASD and the BAP. I will then review the topics of stress and empathy, including how they relate to P-ASD and people with BAP. Following, I will review what is known regarding the effects of stress reduction on empathy. I will introduce TFT, the chosen intervention method, including theory, mechanisms, and supporting research for this technique. Finally, I will introduce my hypotheses.

Autism Spectrum Disorder

Autism spectrum disorder (ASD) is a neurodevelopmental disorder. The disorder is characterized by impairments in the areas of social interaction and communication, which are not limited to one setting and context. Deficits in social interaction include social-emotional responsivity, social attention or social-reciprocity, and deficits in nonverbal social communication behaviors. ASD is also characterized by repetitive or restricted motor or verbal behaviors, and the characteristics cannot be better explained by sensory impairments, intellectual disability, or a global developmental delay. ASD greatly affects the child's ability to develop, learn, and be in a relationship with others, which consequently affects the child's and family's overall wellbeing (American Psychiatric Association [APA], 2013; ZERO TO THREE, 2016). The diverse presentation of abilities, challenges, and sensitivities of people with ASD is influenced also by their relationships and environmental support, health, stressors, genetic factors, and personality (ZERO TO THREE, 2016). The Centers for Disease Control and Prevention (CDC) now estimates the ratio of individuals diagnosed with ASD as 1:54 (Centers for Disease Control and Prevention, 2020).

Broad Autism Phenotype (BAP)

The term broad autism phenotype (BAP**)** refers to subclinical traits of autism observed in the older and younger siblings (Ben-Yizhak et al., 2011; Gamliel et al., 2007; Yirmiya et al., 2006), as well as parents of individuals with ASD (for a review, see Sucksmith et al., 2011). Subclinical deficits in social and communication skills were documented by Kanner and Asperger, the "fathers" of the diagnosis, as characterizing the parents of children under their care (Sucksmith et al., 2011; Yirmiya & Shaked, 2005). These characteristics do not impact the relatives' function in a pervasive way as observed in autism; however, it does affect it in meaningful ways (Yirmiya & Shaked, 2005). The difficulties these relatives experience are attributed to the genetic basis of autism (Hampson & Blatt, 2015; ZERO TO THREE, 2016). In a recent systematic review, the rates of P-ASD identified with BAP characteristics in previous studies ranged widely depending on the methods of measurement, data collection, gender, and sample size. Mothers of children with ASD (3-53%), fathers of children with ASD (2.6-80%), and mothers and fathers combined (5.3-56%), were identified as having BAP (Rubenstein & Chawla, 2018). This high variability makes it difficult to ascertain the prevalence of BAP characteristics among P-ASD.

The BAP is best characterized by three constructs. Two are personality characteristics: (a) aloofness, lacking an interest in social interactions or enjoyment from them; and (b) rigidity, having little interest in change or difficulty adjusting to it (cognitive and behavioral inflexibility). The third construct is pragmatic language difficulties. These are deficits in the social aspects of language, the understanding and appropriate use of verbal and nonverbal communication which results in challenges communicating effectively, or maintaining a fluid, reciprocal communication interaction (Hurley et al., 2007). Aloofness

and pragmatic language abilities are considered social characteristics of the BAP. However, while aloofness is a manifestation of the motivation to interact, pragmatic language abilities refer to competency during the interaction. Rigidity is a non-social BAP trait (Faso et al., 2016). Indeed, in a review of studies from over two decades by Sucksmith et al. (2011), BAP characteristics of P-ASD were found to include pragmatic language difficulties and challenges in the social domain, including poor social skills, reduced social responsiveness, a reduced quality or reduced number of social relationships, and a reduced interest in them. Other challenges identified were in social cognition, including difficulties identifying mental states and basic emotions, as well as facial processing strategies. Elevated personality trait rates of aloofness, rigidity, hypersensitivity, neuroticism, anxiety, depression, and obsessive-compulsive disorder have also been identified as characteristic of P-ASD (Sucksmith et al., 2011). These characteristics relate to the experiences of stress and empathy, as will be further discussed, and therefore I measured BAP in the study.

Stress

Stress has been defined as "a relationship between the person and the environment that is appraised as personally significant and as taxing or exceeding resources for coping" (Lazarus, 1966 as cited in Folkman, 2013, para. 1). In addition to the cognitive aspect of appraisal, Lazarus (1993) emphasized the role of emotions in the stress experience. These emotions result from the subjective meaning of harm and benefits a person generates from a specific relationship between themselves and the environment (Lazarus, 1993), impacting their ability to handle and resolve the situation (Terzian et al., 2010). Maladaptive or inadequate coping strategies will result in stress (Hayes & Watson, 2013; Zaidman-Zait et al., 2018). The stress response is characterized by physiological arousal and emotional responses

such as negative affect, especially anxiety (Folkman, 2013; von Dawans et al., 2019). On the biological level, the hypothalamic-pituitary-adrenal axis is activated during stress, resulting in the release of cortisol (Abelson et al., 2014; Engert et al., 2014; Laurent et al., 2011; Reinhard et al., 2012). Stress negatively impacts immunity and health (Godbout & Glaser, 2006), cognitive abilities (Friedel et al., 2017; Reyes et al., 2015), and relationships (Coyl et al., 2002; Randall & Bodenmann, 2009). Stress can be acute or chronic. Acute stress is the most common type. It is temporary and results from a past event or an anticipated event, accompanied by past or anticipated demands and pressures. Chronic stress refers to constant, persistent daily demands or pressures, which can be psychologically or physically debilitating, such as poverty or dysfunctional families (APA, 2012). In a 2019 survey by the American Psychological Association, personal sources of stress levels were found to be stable over the years (APA, 2019).

Lazarus (1993) noted that four components comprise the stress process: an external or internal stressor; a psychological or physiological evaluation of the danger the stressor poses; a psychological or physiological coping process; and eventually, the stress reaction, which is the result of the effects on mind and body. Lazarus highlighted the multidimensionality of stress, indicating that in each stressful situation (or across similar situations), multiple feelings might be involved. These might be negative, such as anger, anxiety, or guilt. They might also be positive and support resiliency, such as feeling hopeful (Lazarus, 1993). TFT, the intervention used in this study, allows people to address these different feelings during individual application of the technique, providing a rich and personally tailored experience. As specific feelings arise, the person who is tapping addresses them (“taps on points of the body”) until the negative feeling diminishes.

The utility of the coping strategy results from the type of stressor, personality and individual differences, and the outcome tied to the response (health, social functioning, a subjective physical or psychological feeling of being comfortable [well-being]; Lazarus, 1993). Cognitions are the subjective interpretation of the significance of an event (Lazarus, 1993). In this study, the participants identified the stressors (cognitions) they wanted to treat when applying the intervention. These stressors were subjective, though not necessarily unique to any one participant. Individual differences, such as the existence of BAP characteristics or the existence of a current mental health (MH) condition, and different cognitive styles have a role in determining what is perceived as a stressor. The TFT intervention technique as a coping strategy impacts those cognitions by disconnecting them from negative feelings (the hypothesized mechanisms are further discussed under "Theoretical Basis"). Stressors and the emotions and feelings associated with them might differ between participants and change daily—if not more frequently—for each individual. However, methodological reasons pertaining to this study favored a unified (not individually tailored) protocol. Therefore, the TFT and control-stimulation protocols for this study addressed a variety of emotions and feelings that might be experienced in response to stressors. The TFT technique will be discussed in this chapter under "Energy Psychology," and the specific protocols will be discussed in Chapter 3, Methodology.

Parenting stress is distinct from general stress (Deater-Deckard, 1998). In the next section, I will review and define parenting stress and sources for it, with a focus on sources of stress typical to P-ASD. I will also review the possible impact of genetic components, namely subclinical traits typical of autism (BAP) when identified in P-ASD and the implications for parents' stress.

Parenting Stress

Caregiver stress, defined by Lazarus and Folkman (1984) as it appears in the online version of *Encyclopedia of Behavioral Medicine*, is “a feeling experienced when a person thinks that the demands of caregiving exceed the personal and social resources the individual is able to mobilize” (Kim, 2013, Definition, para.1). Specifically, parenting stress is “the aversive psychological reaction to the demands of being a parent” (Deater-Deckard, 1998, p. 314). It is distinct from general stress or other domain-specific areas of stress. Rather, parenting stress is dependent on the parents' functioning, the parent-child relationship, and the child's functioning. Parenting stress involves negative feelings toward the self as a parent and toward the child. It results from caring for the physical and emotional needs of the child and the demands of social roles and social expectations. Sources of stress, or lack thereof, include individual differences in coping mechanisms with the stressors; cognitive appraisals (the parent’s subjective understanding) regarding the motivation for a child’s behaviors and the locus of control for the behavior; values regarding the appropriateness of behaviors; knowledge of parenting; and social support (Deater-Deckard, 1998). Deater-Deckard (1998) also noted that parents’ stress can be affected by child characteristics and the parent-child interaction. Therefore, stressors and levels of stress might differ for parents when they interact with their different children. Folkman and Lazarus (1985) noted that parenting stress was the result of the inability of the family unit, not the individual parent, to apply the family’s common coping strategies to a situation and restore functioning (as cited in Hayes & Watson, 2013).

Parenting stress is “normal” and exists regardless of parents’ education, socioeconomic status, social support, and other factors (Deater-Deckard, 1998). However,

links were identified between parental stress and psychopathology, especially for parents of children with ASD and other developmental disabilities (DD; Falk et al., 2014; Ingersoll & Hambrick, 2011; G. H. S. Singer et al., 2007; Yirmiya & Shaked, 2005; Zablotsky et al., 2013).

High stress levels of parents of neurotypical and neurodiverse children correlated with negative parental practices such as intrusiveness (Mills-Koonce et al., 2009) and physically harsh parenting practices (Martorell & Bugental, 2006), with lower perceived ability to set limits (Osborne et al., 2008a; Osborne & Reed, 2010), and impacted self-perceived parent-child interaction (Osborne & Reed, 2010). High levels of parental stress also correlated with negative findings related to child attachment (Jarvis & Creasey, 1991), child behavior (Lecavalier et al., 2006; Osborne et al., 2008a; Osborne & Reed, 2009; Walker & Cheng, 2007; Zaidman-Zait et al., 2014), child gains in language (Roberts, 2019), and educational functioning, adaptive behavior, and social skills following early intervention (Osborne et al., 2008b). The emotional, social, and cognitive development and adjustment of neurotypical and neurodiverse children are thus impacted. Researchers suggested that parental stress might negatively impact the child because of the parents' inability to adhere to treatment plans (Falk et al., 2014) or because of their lack of ability to support the child's regulation via positive parental practices (Yorke et al., 2018).

Stress in Parents of Children with ASD

Although studies on individual and family resiliency exist (Bayat, 2007; Plumb, 2011), many studies have focused on the emotional hardships associated with parenting a child with ASD. P-ASD have been found to experience greater stress compared to parents of typically developing children (Dabrowska & Pisula, 2010; Zablotsky et al., 2013) or parents

of children with other developmental delays (Dabrowska & Pisula, 2010; Hayes & Watson, 2013; Schieve et al., 2007). In the following section I reviewed studies in which the researchers explored associations with parenting stress of P-ASD or predictors of it. In most studies stressors related to having a child with ASD were explored. P-ASD, however, might also experience greater general life stress (Quintero & McIntyre, 2010). These stressors can be acute, such as when transitioning between educational settings or waiting for therapeutic supports to be set up (Rivard et al., 2014), or when in need of medical, paramedical, or educational special support (Schieve et al., 2007). The stressors might be chronic resulting from financial challenges, insufficient social support, health concerns, child behavior issues, and more. Acute stress might become chronic if unresolved, or if solutions are unstable. In the current study, I separately measured general stress and parenting-related stress, both potentially sources of acute or chronic stress, and the impact of the TFT protocol intervention and the control-stimulation intervention on them.

Stressors of P-ASD

Stressors identified in the literature can be categorized as child-related, parent-related, relational, and environmental.

Child-Related Factors. Child-related stressors include the impairments in social communication and the restrictive and repetitive behaviors of children with ASD; the range, severity, or frequency of challenging behaviors (Falk et al., 2014; Jones et al., 2014; Miranda et al., 2019; Osborne et al., 2008a; Osborne & Reed, 2009; Yorke et al., 2018; Zaidman-Zait et al., 2017); the presence of other comorbid disorders; the child's prognosis (Falk et al., 2014; Yorke et al., 2018; Zablotsky et al., 2013); and the "invisibility" of ASD (lack of clear external characteristics such as facial features; Falk et al., 2014). Additionally, during

transition times when the child is awaiting services, the burden of the child's social-emotional, behavior, or concentration difficulties on the family also impacted the parents' stress levels (Rivard et al., 2014; Schieve et al., 2007). However, child-related factors have not consistently been identified as stressors: Roberts (2019) did not identify internalizing and externalizing behaviors as stressors. Possibly conduct-related and other behavior problems, which have been identified as sources of stress for parents (Beer et al., 2013; Lecavalier et al., 2006; Osborne & Reed, 2009; Zaidman-Zait et al., 2017), are mediated by the severity of the child's ASD (Yorke et al., 2018). However, this, too, was not found consistently (Falk et al., 2014). Others found that the relationship between ASD symptom severity and parenting stress was mediated by the child's behavior challenges and a parent factor—the parents' engaged coping strategy (Miranda et al., 2019). Falk et al. (2014) found the severity of autism symptoms to be a stressor for mothers but not for fathers, while Osborne and Reed (2009) identified it as a stressor for parents of younger, but not older, children. Hence, possibly, the child's age and proximity to time of diagnosis matter. Child characteristics such as severity of ASD symptoms might be a source of stress when the child is younger, before diagnosis or shortly after it. Child behaviors might be a source of stress when the child grows older (Osborne & Reed, 2009). In this study, stress related to child-characteristics was measured by the Difficult Child Scale of the Parenting Stress Inventory (PSI/SF-3e, Appendix A [Eng.], Appendix B [Heb]), and via questions in the demographic questionnaire (Appendix C [Translation of Hebrew version, and adaptations made for Eng. version]; Appendix D [Heb.]).

Parent-Related Factors. Cognitions, coping styles, and individual differences have been identified as predictors of stress for parents. Sex differences have not consistently been related to stressors.

Cognitions. Parents' cognitions were identified in some studies as a greater source of stress than child-centric variables (Falk et al., 2014; Ingersoll & Hambrick, 2011; Zaidman-Zait et al., 2017). These include parents' perception of their ability to parent effectively (Najman et al., 2000; Osborne & Reed, 2010; Yorke et al., 2018) and locus of control (Dunn et al., 2001; Falk et al., 2014). Measuring only parenting related cognitions was identified as a study limitation, as stressors might be unrelated to parenting (Falk et al., 2014; Lecavalier et al., 2006).

One of the strengths of TFT is in the individual's ability to choose the cognition that evokes stress, be it related to parenting, or a general stressor. The use of TFT does not change cognitions; however, it supposedly reduces stress by disconnecting the negative affect associated with those cognitions. This, in turn, might enable a change in cognitions. The way tapping impacts cognitions as part of the experience of stress is addressed later in this chapter.

Coping Styles. While active coping strategies such as problem solving or cognitive reframing of the situation were predictors of lower stress (Zaidman-Zait et al., 2017) and improved maternal outcomes over time (Benson, 2014), other strategies were associated with higher stress levels or predicted it. Avoidance strategies, such as emotional disengagement (Zaidman-Zait et al., 2017) and distraction or physically distancing one's self from the situation, were found to contribute to increased stress by some researchers (Benson, 2014; Dunn et al., 2001; Hastings et al., 2005) but not by others, suggesting that the severity of the

child's ASD symptoms moderates this relationship, making it a useful strategy when symptoms are severe (Lyons et al., 2010). Dabrowska and Pisula (2010) found that P-ASD did not use social diversion (visiting or calling a friend) as an avoidance coping strategy as much as parents in control groups. These researchers wondered if parents' lesser social interest resulting from BAP characteristics prevented them from using this strategy. An alternative explanation offered was that the difficulties of raising a child with ASD limited the social activity of otherwise socially competent parents; hence, social diversion was not an available option to the extent it was for others (Dabrowska & Pisula, 2010). Avoidance by denial of the child's diagnosis or challenges was identified in fathers experiencing stress (Ludlow et al., 2012).

Using TFT allows the person to confront a feeling, memory, or fear in a safe situation. The cognitive and visceral processing offered might result in reframing of cognitions and a change in behavior to active, non-avoidant strategies.

Individual Differences. Individual differences between parents and family members can be sources of stress or mediators of it (Deater-Deckard, 1998; Hayes & Watson, 2013; Schieve et al., 2007). Parents' social interest and ability to utilize resources, as well as their mental health before the birth of the child with ASD, were also found to impact stress levels (Ingersoll & Hambrick, 2011). BAP characteristics are individual differences measured in this study.

P-ASD with BAP. Having BAP characteristics might be a risk factor for stress, intensified by parenting demands. Having BAP characteristics might support non-productive or negative communication, social isolation, and inadequate, ineffective coping strategies of parents of children with ASD (Ingersoll & Hambrick, 2011). Despite this, participants' BAP

is not routinely measured in research engaging P-ASD (Falk et al., 2014; Hayes & Watson, 2013). I identified only one study that explored the relationship between P-ASD with BAP, and stress. Ingersoll and Hambrick (2011) found in that study that P-ASD with BAP characteristics were at higher risk for stress, mediated by coping strategies and social support. Positive coping strategies, though negatively correlated with BAP, did not predict stress. BAP traits, such as rigidity and hypersensitivity to criticism, might make parents prone to use maladaptive strategies, adding to the challenges of parenting a child with ASD (Ingersoll & Hambrick, 2011). This finding emphasizes the importance of identifying parents with BAP and providing them with appropriate coping strategies, even as a preventative measure for using maladaptive ones. Falk et al. (2014) identified a lack of social support as a stressor for P-ASD. The BAP characteristic of aloofness—the lessened interest in social interactions (Hurley et al., 2007)—might make it difficult to find, maintain, or utilize needed social support, thus also contributing to stress. In this study, I measured BAP characteristics to explore the relationship with stress, empathy, and the effect of the intervention on stress and empathy for parents with BAP.

Sex Differences. Findings are inconsistent regarding the sources of stress and amount of stress experienced by mothers compared to fathers (Dabrowska & Pisula, 2010; for a review see Falk et al., 2014; Ludlow et al., 2012; Rivard et al., 2014). Hayes and Watson (2013) pointed to the higher number of studies that included mothers compared to studies in participation of fathers, as a possible reason for this inconsistency.

Relational Factors. Relational factors might also impact parental stress levels, with interaction characteristics contributing to parental stress via impact on child behavior, and vice versa. Family dysfunction, characterized by lower levels of discussion of emotions,

collaboration in the decision-making and problem-solving processes, and acceptance of family members was positively associated with stress (Zaidman-Zait et al., 2017).

In their meta-analysis, Yorke et al. (2018) found support from longitudinal studies for the bidirectional relationship between parents' psychological well-being and the child's emotional-behavioral problems, with an indication that parental stress and child behaviors escalated each other. Yorke et al. (2018) suggested that parents' coping strategies might moderate the relationship between the child's emotional-behavioral problems and parents' stress, or the relationship between parental stress and parents' behavior. In this study, the Parent-Child Dysfunctional Interaction Scale of the PSI/SE-3e (Appendix A [Eng.], Appendix B [Heb.]), was used to identify stress that results from relational factors.

Environmental Factors. Researchers identified social support and economic support as significant predictors of parental mental health (Zablotsky et al., 2013), greater than child-centric variables (Falk et al., 2014; Ingersoll & Hambrick, 2011; Zaidman-Zait et al., 2017). Lack of support sources, social stigma and isolation, and the timing and process of receiving the diagnosis could be sources of stress or mediators of stress (Deater-Deckard, 1998; Hayes & Watson, 2013; Schieve et al., 2007). Ingersoll and Hambrick (2011) found that the severity of the child's symptoms was a negative predictor of social support, which in turn negatively predicted parenting stress. Of these environmental stress factors, I collected information on social support, support for basic needs, and the severity of the child's symptoms as perceived by the parent (Demographic questionnaire: Appendix C [Eng.], Appendix D [Heb.]).

Empathy

Empathy was identified in cultures worldwide (Walter, 2012) and has been broadly defined as the ability to share another person's internal world of thoughts and feelings (T.

Singer, 2006; Walter, 2012). Observed to develop soon after birth, the cognitive, emotional, and behavioral manifestations of empathy change as the child's emotional, social, and cognitive skills develop and mature (Decety, 2010; T. Singer, 2006; Taylor et al., 2013). As empathy develops, people increase their ability to predict the behavior of others and understand it, resulting in prosocial and cooperative behavior and inhibited aggression. Empathy is considered a fundamental construct for mental health and moral reasoning (Christov-Moore & Iacoboni, 2016; Decety, 2010, 2011; T. Singer, 2006).

Types of Empathy

Empathy is a multidimensional construct. Two types of empathy have been distinguished and referred to by many researchers. One type is affective (emotional) empathy, originally defined by Eisenberg et al. (1998) as "the affective response that results from the apprehension or comprehension of another person's emotional state or condition, and that is similar to what the other person is feeling or would be expected to feel" (Eisenberg, 2000, p. 671). The affective components might include emotional contagion (Abraham et al., 2018; Decety, 2010) and the ability to infer the feelings and emotions of the other person from his or her use of language or non-verbal cues (Eisenberg, 2000). Cognitive empathy, the second type, is the ability to understand the feelings of others without necessarily being in the same affective state (Walter, 2012; Wolf et al., 2015). The cognitive components of empathy include perspective taking (Abraham et al., 2018; Decety, 2010), theory of mind, and mentalization abilities (Grove et al., 2014; Jamil, 2016; T. Singer, 2006; Walter, 2012), often used interchangeably (Grove et al., 2014). These cognitive components allow one to assess, understand, predict, and make attributions to another person's intentions, beliefs, and desires (Decety, 2010; Eisenberg, 2000; T. Singer, 2006). Because cognitive

skills are required in order to recognize and distinguish the affective cues of another person (Eisenberg, 2000), Walter (2012) suggested to integrate cognitive appreciation of the other's affective state into the definition of affective empathy. The affective and cognitive components overlap and interact, resulting in an empathic response (Eisenberg, 2000; Malti et al., 2016; Walter, 2012).

Emotion regulation is a third component of empathy added to the affective and cognitive components (Decety, 2010, 2011; Decety & Jackson, 2006), and relevant to this study. Emotion regulation is a cognitive ability that enables people to control their emotion, affect, motivation, and drive (Decety, 2011). Being in a regulated state allows the differentiation between self and other (Decety & Jackson, 2006). This, in turn, enables one to control, modify, and manage one's emotions (Eisenberg & Fabes, 1992 as cited in Hein et al., 2018). Thus, the capacity to attend to others on the emotional and cognitive levels increases when supported by emotion regulation. One of the cognitive capacities that increases with regulation is perspective taking. Perspective taking, without feeling personal distress, makes it possible to focus on the emotions and needs of the other person (Decety, 2011; Decety & Jackson, 2006; Eisenberg, 2000; Hein et al., 2018; Malti et al., 2016), although contrary to the former findings, Negd et al. (2011) found that perspective taking was actually associated with higher levels of personal distress (Negd et al., 2011). Perspective taking (as a cognitive ability), theory of mind, and mentalization have been identified as a source of challenge in people with ASD (Grove et al., 2014; Jamil, 2016) and their relatives with BAP (Grove et al., 2014; Jamil, 2016; Lockwood et al., 2013; Sasson, Nowlin, et al., 2013). Perspective taking is considered to be responsive to intervention (Konrath, 2013), and indeed Lamothe et al.

(2018) found that scores on the Perspective Taking scale (measured by the Interpersonal Reactivity Index, IRI, used in this study) increased after a stress reduction intervention.

As people mature, the bottom-up processes of affective arousal (automatic, involuntary differentiation between pleasant and unpleasant stimuli) interact with the top-down processes in which cognitive emotion awareness (understanding the feelings of self and others, an ability related to theory of mind and perspective taking), emotion regulation, motivation, and intention influence the empathic experience (Decety, 2010, 2011; Walter, 2012). Researchers identified emotion regulation in response to stressors, as a modulator for the magnitude of the empathic response (e.g., prosocial behavior; Decety & Jackson, 2006; Eisenberg, 2000).

Contributors to the Development and Manifestation of Empathy

Personality and early relationships also have a role in the development of empathy. Jamil (2016) found that relatives (not parents) of people with ASD, with higher social BAP scores (exhibiting aloof personality and challenges in pragmatic language), tended to have weaker self-reported empathy skills. Lamport and Turner (2014) also identified a significant negative correlation between aloofness and pragmatic language, and self-reported empathy. The causality, however, is not clear. Wainer et al. (2011) suggested that the impairments in empathy might be, in part, responsible for the aloof and rigid behaviors observed in people with BAP (Wainer et al., 2011).

The development of empathy is done in the context of relationships, such as in the mother-child relationship (Abraham et al., 2018; Taylor et al., 2013), hence the importance of the empathic abilities of parents. Possibly prior experiences of P-ASD with BAP characteristics place them at a disadvantage when interacting with their child with ASD.

These parents might have weaker empathy skills resulting from unsuccessful past interactions because of less exposure or practice opportunities, motivation (aloof personality), ability challenges (difficulty with pragmatic language), or lack of flexibility (rigidity). Together, these findings are important when considering not only empathy, but also causes for personal stress and parent-child relationship-related stress in this study. BAP characteristics are measured by self-report on the BAP Questionnaire used in this study.

Additional contributors to the development of empathy, not directly measured in this study, include genetics (Knafo & Uzefovsky, 2013), brain structures, neural pathways and hormones (Abraham et al., 2018; Derntl et al., 2010; Gonzalez-Liencres et al., 2016; T. Singer, 2006), and ecological factors (Walter, 2012). All have a role in the development of empathy. The relationship between empathy and sex differences (Hein et al., 2018; Taylor et al., 2013; Tracy & Giummarra, 2017) or individual differences (Christov-Moore et al., 2014) has not been established at this point.

Autism Spectrum Disorder, Broad Autism Phenotype, and Empathy

People with ASD have been found to have a deficit in empathy (Grove et al., 2014; Sucksmith et al., 2011). While some researchers found evidence for impairments in both cognitive and affective empathy (Grove et al., 2014), others found support for intact affective empathy skills, but impaired cognitive empathy (Dziobek et al., 2008; Grove et al., 2014). This is explained by the empathy imbalance hypothesis according to which people with ASD experience an imbalance between low cognitive empathy abilities and high affective (emotional) empathy sensitivity. Thus, “feeling others” without cognitively understanding why these feelings arose, creates dysregulation which is expressed through rigidity and repetitive behaviors (A. Smith, 2009).

There is, however, no consensus on whether empathy deficits are part of the BAP. Studies have included P-ASD (Craig et al., 2019; Grove et al., 2014; Sucksmith et al., 2011) or other relatives (Jamil, 2016), as well as participants from the general population with BAP characteristics (with no indication if they had relatives with ASD; Jakobson et al., 2018; Lamport & Turner, 2014; Lockwood et al., 2013; Wainer et al., 2011; Zhao et al., 2019). While some researchers found support for lower cognitive and affective empathy in people with BAP characteristics (Grove et al., 2014; Jakobson et al., 2018; Jamil, 2016; Zhao et al., 2019), others did not find that P-ASD with BAP had a different tendency toward empathizing than parents of typically developing children (Craig et al., 2019), yet others found an indication for deficits in cognitive empathy without deficits in components of affective empathy (Jamil, 2016; Lockwood et al., 2013). Jamil (2016) suggested that people with BAP struggle with the cognitive aspects of empathy but not with the affective aspects of it; hence, they can *feel* with others, but do not understand *why* that emotion arose. This is in accordance with the empathy imbalance hypothesis for people with ASD and might be relevant for people with BAP as well.

Jamil (2016) suggested that differences in findings might be attributed to the measurement tools, with self-reports and performance measures yielding different results. Grove et al. (2014) suggested that performance tools intended to measure cognitive empathy, actually measure in the ASD and P-ASD population cognitive empathy, emotional (affective) empathy, and social skills almost equally. Possibly, social cognition difficulties impact the parents' ability to understand the thoughts and emotions of others and feel empathy for them.

The Relationship Between Stress and Empathy

Since empathy relies on emotional, cognitive, and regulatory processes, it is to be expected that stress and empathy will impact one another. Indeed, this has been an area of scientific inquiry. Researchers found that in a natural setting and based on self-reports, as stress increased, empathy decreased (Passalacqua & Segrin, 2012). The effects of stress elevation on the neurological or behavioral manifestation of empathy (Duesenberg et al., 2016; Laurent et al., 2011; Martorell & Bugental, 2006; Mills-Koonce et al., 2009; Nitschke et al., 2015; Schneiderman et al., 2014; Tomova et al., 2014; von Dawans et al., 2012, 2019; Wolf et al., 2015) have been studied, although findings are inconsistent.

Few researchers have attempted to understand the effects that stress reduction might have on the experience of empathy (Bazarko et al., 2013; Beddoe & Murphy, 2004; Decety, 2010; Decety & Jackson, 2006; Galantino et al., 2005; Martin et al., 2015). Studies measuring the association between stress reduction and empathy, via a mind-body method as used in this study, are limited and the findings are inconclusive (Bazarko et al., 2013; Beddoe & Murphy, 2004; Galantino et al., 2005). The limited studies on the unique effects of stress reduction on empathy, which I explored in this study, seem to be a gap in the literature. P-ASD or people with BAP were not participants in the above-mentioned studies. I was unable to identify studies that explored the relationship between stress reduction and empathy in P-ASD or people with BAP. Thus, the studies presented in the following review were done with otherwise typically developing participants.

I identified three studies by researchers who explored the relationship between stress reduction and empathy by utilizing a mindfulness-based stress reduction (MBSR) intervention (Bazarko et al., 2013; Beddoe & Murphy, 2004) or a mindfulness meditation

program (based on MBSR and cognitive therapy principals; Galantino et al., 2005). Mindfulness techniques are relaxation strategies for self-regulating and for calming the mind and the body through a focus on present-moment awareness, without judgment (Bazarko et al., 2013; Bishop et al., 2004; Kabat-Zinn & Hanh, 2013). Stress and empathy were measured in the three studies mentioned above with self-report tools. Galantino et al. (2005) also checked for cortisol levels in their participants' saliva. In two of the studies, by Beddoe and Murphy (2004) and by Galantino et al. (2005), the Interpersonal Reactivity Index (IRI) was used to measure empathy, as in this study. None of the studies had a control group, and the impact of measuring tools, sample characteristics, situational factors, or other factors were not fully addressed (Bazarko et al., 2013; Beddoe & Murphy, 2004; Galantino et al., 2005). Bazarko et al. (2013) found that post-intervention, stress (measured by the PSS, as in this study) decreased, and empathy increased (measured by the self-report Jefferson Scale of Empathy; Bazarko et al., 2013). Beddoe and Murphy (2004), on the other hand, found that despite a decrease in stress scores post-intervention, empathy scores did not change. The non-significant change in scores on the Perspective Taking and Empathic Concern scales of the IRI was explained by a ceiling effect. Scores on the Personal Distress and Fantasy Scale—the self-oriented scales of the IRI, also changed (not significantly), pointing to a possible positive effect on the participants' ability to respond in a more empathetic way (Beddoe & Murphy, 2004). Yet, no change in stress (measured by cortisol secretion) or empathy levels (measured by the IRI) followed the cognitive-behavioral-mindfulness intervention in the Galantino et al. (2005) study. In an additional study, Lamothe et al. (2018) identified an increase in Perspective Taking (an "other-oriented" cognitive empathy scale of IRI measure) following an MBSR program. However, stress was not measured in this study. Scores on the Empathic

Concern scale ("other-oriented" emotional empathy) did not change. In their study, these researchers suggested that the cognitive nature of MBSR affected Perspective Taking, but not Empathic Concern (Lamothe et al., 2018). MBSR training aims to reduce stress using a variety of practices including breathing, meditation, and yoga. Through these practices, different skills are developed, such as observation of bodily, emotional, and environmental sensations (Kabat-Zinn & Hanh, 2013). These skills and practices might independently and jointly affect stress reduction. In the current study, one intervention protocol (a single practice) was applied in each condition, allowing to explore the relationship between changes in stress and changes in empathy, and practice of that protocol. Further, it allowed to explore whether stress mediated the effect of the intervention on empathy.

Interventions for Stress Reduction

Due to high levels of stress identified in P-ASD, and the implications for parents' mental health, parenting skills, relationships, and child development, researchers recommended including stress management in intervention programs (Hastings & Beck, 2004; Lindo et al., 2016; Osborne et al., 2008a; Osborne & Reed, 2010; G. H. S. Singer et al., 2007). To assess the appropriateness of TFT as a stress management technique, it is important to review the characteristics and efficacy of previously utilized stress reduction strategies. Mancil et al. (2009) conducted a selected synthesis of the literature and did not identify one strategy as most successful in reducing parental stress, as self-reported by parents (Mancil et al., 2009). The strategies parents reported using pertained to family, social, and professional support, as well as having positive cognitions; however, specific therapeutic interventions were not discussed. Researchers exploring the effectiveness of interventions for stress

reduction focused on cognitive approaches and body-relaxation approaches, or a combination of the two.

Cognitive Approaches to Stress Reduction

Cognitions, the subjective interpretation of an event, affect stress levels (Lazarus, 1993). Therefore, cognitions have been a target for intervention. Cognitive behavioral therapy (CBT) interventions that offered parents of children with developmental disabilities self-management skills to directly impact their wellbeing, or those that incorporated cognitive reframing techniques, were most effective in reducing stress and improving mental health (Hastings et al., 2005; G. H. S. Singer et al., 2007).

Body-Relaxation Approaches to Stress Reduction

Several practices are associated with positive effects on levels of stress. These include mindfulness and self-compassion. Parents, including P-ASD, who used mindfulness protocols have been found to present with reduced stress (Cachia et al., 2016; Neece et al., 2019; Singh et al., 2007, 2014). And, as previously mentioned, mindfulness training potentially resulted in an increase in components of empathy (Bazarko et al., 2013; Beddoe & Murphy, 2004; Lamothe et al., 2016). Self-compassion is the ability to be mindfully aware of negative thoughts and emotions while being kind to oneself and recognizing that making mistakes and suffering are a common experience among humans. Self-compassion allows one to not be judgmental toward the self and not feel isolated by difficulties (Neff & Faso, 2015). Specifically for P-ASD, ratings of self-reported self-compassion predicted, and were negatively correlated, with the parents' personal stress and their experience of their child as difficult. Parent-child relationships also improved. This finding emphasizes that the way parents relate to themselves affects their well-being (Neff & Faso, 2015).

Combining Mind-Body Strategies

Combining cognitive and body-relaxation techniques possibly yields the best results. Galbraith and Brown (2011) found in their systematic review of the effectiveness of stress reduction interventions in nursing students that the most effective strategies included both components discussed—relaxation and cognitive techniques (Galbraith & Brown, 2011). Lindo et al. (2016) conducted a meta-analytic review of six studies that explored interventions for stress management of parents of children with DD. P-ASD were included in four of the studies, although not necessarily as a separate group. They found that coping-skills interventions aimed at addressing parents' stress, and behavioral programs aimed at helping parents support their children's behavioral needs, were helpful. They were unable, though, to examine the efficacy of the specific interventions, which included cognitive strategies such as problem solving and reframing, as well as meditation, because of the small number of studies. The coping skills and behavioral programs both provided participants with social support, which has continuously been identified to be related to reduced stress (Falk et al., 2014; Ingersoll & Hambrick, 2011; Zablotsky et al., 2013). This, too, made it difficult to tease out the impact of a specific stress reduction intervention. Researchers also suggested that the frequency of using specific coping strategies, as well as their effectiveness, changes for the parents as the child develops. Coping by problem solving might be useful when children are young and parents struggle to understand and respond to the child's abilities, therapeutic needs, and educational needs, as well as adjust to changing family dynamics, and professional, economic, and social challenges. Compared to coping by problem solving, mindfulness and positive acceptance might be better suited as children

mature, supports and routines are in place, and the child's symptoms and behaviors are familiar (Benson, 2014; Hastings & Beck, 2004).

TFT is a mind-body technique. In TFT, participants choose the stressor they wish to eliminate. This potentially empowers the participants to take control over their stress, in a reality that might seem at times too overwhelming or externally controlled by people or circumstances. As cognitions change and stress is reduced, emotional resources might be freed, allowing parents to attempt to problem-solve, seek support as needed, implement therapy programs, and so forth. Although parents' stress can result from either general or parenting-related issues, the bodily stress reaction itself is similar regardless of the origin (Deater-Deckard, 1998). Hence, a stress reduction strategy that can be used for any stressor is a beneficial tool for parents. The TFT technique might prove to be beneficial in this way, since participants can address a variety of stressors. Another advantage of TFT compared to mindfulness and CBT is its shorter training period. Mindfulness training spans over 8 weeks (Neece et al., 2019; Singh et al., 2007) or longer (Singh et al., 2014), and includes formal teaching, practice, discussion, and reflection in each session (Neece et al., 2019). CBT usually includes 12 meetings, about 50 minutes long (Irgens et al., 2017). In comparison, a basic TFT protocol, like in this study, can be taught in one session that includes practice, and can immediately be applied.

Energy Psychology

The Association for Comprehensive Energy Psychology (ACEP), an international organization that promotes research and application of energy psychology (EP) approaches, described EP as

> A mind-body approach to understanding and improving human functioning. EP focuses on the relationship between bioenergy systems, neuro and electro

> physiological processes, and mental functions involving thoughts, emotions, sensations, and behavior. These systems and processes exist and interact within the individual and between people. They are also influenced by cultural and environmental factors. (Association for Comprehensive Energy Psychology, n.d., para. 1)

EP is thus a family of mind/body interventions that are based on the idea that an energy field, a vibrational human matrix, which carries information, surrounds the body. The matrix includes the biofield around the body, the energy centers (chakras), and the energy pathways—meridians and acupoints (Oschman, 2006). Various EP techniques target the flow of energy within the body to shift psychological symptoms. The theories behind the different techniques assume that the cognitive-behavioral-emotional patterns result from a bio-energetic flow. When the healthy flow is interrupted, the interrupted bio-energetic patterns and electrochemical processes result in psychological problems. Hence, psychological problems indicate a negatively affected energy system.

Treatments combine cognitive interventions with the stimulation of bio-energetic systems (Andrade & Feinstein, 2004; Dunnewold, 2014). Post-treatment, observable changes in the biochemical and electrochemical function might include the psychological presentation of reduced anxiety or stress, and/or the alleviation of negative emotions or the experience of pain (Andrade & Feinstein, 2004).

Thought Field Therapy (TFT)

The intervention technique to be applied in this study, thought field therapy (TFT), is considered to be an energy psychology method (Dunnewold, 2014; Stone et al., 2009). Psychologist Roger Callahan developed the TFT technique in the 1970s (R. Callahan & Trubo, 2001; Stone et al., 2009). Callahan combined ideas and findings from the fields of

psychology, applied kinesiology, quantum physics, and Eastern understanding of the mind-body energy system to create a new therapy tool (R. Callahan & Trubo, 2001).

In 2016, the National Registry of Evidence-Based Programs and Practices (NREPP), a service of the Substance Abuse and Mental Health Agency (SAMHSA) within the U.S. Department of Health and Human Services, listed thought field therapy as an evidence-based practice. This practice was found to be evidence-based for improving personal resilience/self-concept, for improving self-regulation, and for reducing trauma- and stressor-related disorders and symptoms. TFT was also listed as promising for reducing depression and depressive symptoms; for improving general functioning and wellbeing; for reducing phobia, panic, and generalized anxiety disorders and symptoms; and for reducing unspecified and other mental health disorders and symptoms (Irgens et al., 2017). In 2018, the work of NREPP was suspended by the U.S. administration (Peter G. Dodge Foundation, 2018), and therefore, the list is no longer available online. TFT therapists work with individuals with a variety of mental and physical conditions, such as PTSD, phobia, anxiety-related challenges, depression, anger, rage, guilt, acute stress, stress from different sources, bereavement, chronic pain, and more (R. Callahan & Trubo, 2001; Connolly et al., 2013; Connolly & Sakai, 2011; Darby, 2002; Irgens et al., 2012; Sakai et al., 2010).

Basic Concepts of TFT

According to R. Callahan and Trubo (2001), the technique is based on the premise that thoughts are energy. These thoughts are contained in *thought fields*, in which *perturbations* are present. A perturbation is a structural entity that attaches an emotional meaning to an event. Perturbations evolve from the mind-body relationship (R. Callahan & Trubo, 2001). They are caused by negative external events, and it is the perturbation, not the

external event, that causes the negative emotional response (R. Callahan & Callahan, 2000; R. Callahan & Trubo, 2001). According to R. Callahan and Trubo (2001), the perturbation controls the emotional response by controlling the neural pathways that are activated, the hormones secreted, and other chemicals released when different thoughts and feelings arise. The perturbation thus controls the details of the emotional disturbance but is not the disturbance itself (R. Callahan & Trubo, 2001). Therefore, the perturbations, considered to be "the root cause of emotional distress" (R. Callahan & Trubo, 2001, p. 25), are the target of therapy (R. Callahan & Callahan, 2000; R. Callahan & Trubo, 2001). Effective therapy collapses the perturbations, and since according to the underlying theory, feelings and emotions have little internal mass, change is expected to occur rapidly (R. Callahan & Trubo, 2001). Perturbations are always present in the thought field even if not brought into conscious awareness. This allows one to diagnose and treat even people who cannot, for different reasons, tune into their feelings (R. Callahan & Callahan, 2000).

Algorithms are acupoint-tapping sequences for specific concerns (disruptions in the thought field; R. Callahan & Callahan, 2000; R. Callahan & Trubo, 2001; Darby, 2002). Callahan developed algorithms for many common concerns such as stress, trauma, and social anxiety (R. Callahan & Trubo, 2001; Connolly & Sakai, 2011). *Subjective Unit of Distress (SUD)* is a subjective rating ranging from 0-10 of the individual's emotional pain. Individuals assign an SUD to the intensity of their emotional pain before the start of tapping and reassess the SUD during the treatment. This allows the therapist to assess the effectiveness of the treatment (R. Callahan & Callahan, 2000). The change in SUD during the treatment also allows the therapist to monitor and adjust the tapping sequence (Connolly & Sakai, 2011).

The TFT Technique

The TFT technique combines a cognitive component with a physical one (Carbonell & Figley, 1999; Irgens et al., 2012; Mollon, 2007). The cognitive component requires the person being treated to tune into a thought. This is a fundamental requirement since the perturbation is in the "thought field" (R. Callahan & Trubo, 2001), and it is necessary for the person being treated to focus on the thought to activate a biochemical reaction, as will be discussed in the “Theoretical Basis” section. Thoughts should be as specific and multi-dimensional as possible, including feelings and sensory images (Irgens et al., 2017). However, the person does not need to relive the original negative event and can process the difficult memory without being flooded with emotion (Stone et al., 2009).

In the physical component, the person being treated stimulates acupoints while engaged in the disturbing thought. The tapping points are located on the face, upper body, and hands. While tapping, the pressure should be firm enough to allow energy flow, but not be painful (R. Callahan & Trubo, 2001; Irgens et al., 2017). When individuals tap themselves, they have the best control over the strength of tapping and can tailor it to their sensory systems. Since the initiation of the technique, those using it have found that similar results can be achieved when tapping with fingertips as well as when applying pressure on the acupoints not via tapping, or by stimulating the meridian points in other ways (Lane, 2009). The tapping sequence also includes bilateral optical-cortical stimulation: moving the eyes in a circle, humming a tune, and counting, to support the integration of results (R. Callahan & Trubo, 2001; Connolly & Sakai, 2011; Irgens et al., 2012; Sakai et al., 2001).

TFT therapists aim to influence the body’s bioenergy field by tapping on specific acupoints in a specific order for different psychological problems. By doing so, the

psychological field is changed as shown through changes in feelings and reduction or elimination of pathological symptoms (R. Callahan & Callahan, 2000; R. Callahan & Trubo, 2001; Darby, 2002; Irgens et al., 2012). Callahan emphasized the importance of tapping according to the sequence assigned in an algorithm (R. Callahan & Callahan, 2000). Researchers have pointed to conditions in which the order is essential (such as generalized social anxiety and OCD). In other conditions such as specific phobias, there did not seem to be an advantage for a specific tapping order. These researchers did find a small advantage for a protocol based on an individual diagnosis procedure (Andrade & Feinstein, 2004). Combining the cognitive aspect of remembering an event, and the biochemically, bioenergetic relaxation created by tapping allows healing by changing the emotional burden tied to a memory.

To summarize: people focus their thoughts on the problem they have experienced and the associated feelings and tap on locations (acupoints) that stimulate the meridians in a certain order. As a result, the blockage in energy that created the disturbance (anxiety, stress, phobia, etc.) in the energy field is released or otherwise corrected. The memory of the event remains; however, thanks to healthy energy flow being reinstated, the person does not associate the memory with the negative feelings and cognitions previously held, and healing is possible.

Benefits of Tapping

Tapping, used generically to refer to TFT and EFT, is an accessible, easy to learn, non-invasive self-help technique (Connolly & Sakai, 2011; Varvogli & Darviri, 2011). Many basic algorithms are accessible in books or through online resources. Once learned, tapping can be applied by individuals of all ages, as frequently as needed, independently (without the

presence or guidance of a therapist), alone or in groups (R. Callahan & Trubo, 2001; Sakai et al., 2010). When applying this technique, the individual chooses the level of exposure to the negative memory or feeling, allowing the setting to always feel safe (Carbonell & Figley, 1999; Folkes, 2002). TFT can help people achieve self-regulation, which contributes to their sense of control and confidence (Folkes, 2002). Researchers suggested that integrating tapping as an outpatient treatment can also reduce medical expenses and shorten treatment time (Bach et al., 2019; Nicosia et al., 2019).

However, in cases of trauma or other physical or mental health concerns that might put the client or others at risk, TFT should be used in combination of other appropriate interventions provided by medical or mental health professionals, as needed (Andrade & Feinstein, 2004). When integrated into therapy, tapping can help clients to further explore issues of concern (Folkes, 2002). Additional tools, medication, and social support should also be included in the treatment plan as needed (Lane, 2009).

Risks of Tapping

TFT is considered a safe method with limited, rare, side effects. Reported responses to using energy psychology methods include sighing, yawning, and watering of the eyes. Sleepiness or a slight feeling of nausea might also occur (Reynolds, 2010). Re-experiencing traumatic memories (Irgens et al., 2017), increased anxiety (Andrade & Feinstein, 2004), and negative self-ratings (at follow-up only; Swingle et al., 2004) were reported as rare occurrences.

Tapping and the Placebo Effect

The “placebo effect” is a term coined to describe the phenomenon in which a treatment is experienced as helpful because of factors unrelated to the treatment itself. It is

not only the beliefs, expectations, and experiences of the participant and the researcher that might affect results. The psychosocial context of the participant, meaning the interaction between the participants, the researcher, and the treatment environment, also affect results. In randomized control trials, as in this study, contributors to placebo effects can also be changes in the natural course of a medical condition, fluctuations in symptoms, other treatments received by the participants, participants' reporting bias, and regression to the mean (Finniss et al., 2010). R. Callahan and Trubo (2001) claimed that tapping is not subject to the placebo effect because most people do not believe tapping will work. Nowadays, people are probably more familiar with the mind-body connection and possibly more comfortable with the idea of energy utilized in treatment, compared to when this technique was developed. Specifically, participants in this study that sustained participation after learning their protocols, potentially believed their treatment would be helpful. Therefore, safeguards were included in the design of this study to minimize opportunities for a placebo effect, and to assess its occurrence. These included a pre-intervention assessment of participants' expectations regarding the success of the treatment, and other measures described in Chapter 3: Methodology.

Emotional Freedom Technique (EFT)

EFT is a variant of TFT, developed by Gary Craig, a former student of Callahan (Gilomen & Lee, 2015; Stone et al., 2009), in 1995. Researchers have applied EFT in multiple studies, providing support to the efficacy of this technique (Church, 2010, 2013; Church et al., 2018; Feinstein, 2012; Gilomen & Lee, 2015; Jain & Rubino, 2012; Reynolds, 2010; Varvogli & Darviri, 2011). Although TFT and EFT practices differ slightly, they are based on the same premise. Studies using EFT are included in this review when appropriate, especially in the theoretical section.

Studies on TFT

Carbonell and Figley (1999) authored one of the early papers that provided support for the TFT method. These researchers conducted a systematic clinical demonstration with therapists who represented four different models for the treatment of trauma. Participants reported a trauma or phobia but did not need to have a DSM diagnosis. Although the methodology did not allow a comparison of the treatments chosen—traumatic incident reduction (TIR), visual kinesthetic/disassociation (VK/D), eye movement desensitization and reprocessing (EMDR), and thought field therapy (TFT)—the results did show that individuals treated by TFT demonstrated the largest decrease in the mean SUD pre- and post-treatment—3.3 points, with EMDR and TIR coming close. The TFT treatment was also the shortest. However, a statistical comparison of the results was not planned, due to the nature of the different approaches (Carbonell & Figley, 1999).

Support for the effects of tapping came from other researchers. Andrade and Feinstein (2004) compared clinical data of participants with anxiety from 11 centers in South America who received TFT or EFT treatments, with those who received CBT. They concluded that energy approaches yielded faster, better, and longer-lasting results (Andrade & Feinstein, 2004). Feinstein (2012) conducted an overview of 18 randomized control trials (RCT) utilizing TFT and EFT and noted that most studies demonstrated a large effect size on at least one clinical outcome (Feinstein, 2012; Irgens et al., 2017). Gilomen and Lee (2015) followed up with a meta-analysis of 18 RCT studies (two utilizing TFT and 16 utilizing EFT), adding to the Feinstein (2012) study statistical methods to synthesize the data. They concluded that tapping seemed to produce an effect. However, due to methodological differences between the studies reviewed, these researchers could not attribute the effect to acupoint stimulation

or other elements of treatment (Gilomen & Lee, 2015). More recently, Edwards and Vanchu-Orosco (2017) conducted a meta-analysis of five studies in which TFT treatment was applied with clients with PTSD. They found that post measure scores improved significantly after the TFT intervention, compared to pre-measure scores. Limited data did not allow comparison of the TFT intervention to wait-list; however, the trend showed that TFT treatment was superior or equal to the wait-list condition (Edwards & Vanchu-Orosco, 2017).

In previous studies, researchers applied TFT protocols to a variety of mental health conditions such as PTSD (Connolly et al., 2013; Connolly & Sakai, 2011; Folkes, 2002; Robson et al., 2016; Sakai et al., 2010; Stone et al., 2009), phobias (Darby, 2002; Irgens et al., 2017; Sakai et al., 2001), anxiety (Irgens et al., 2012; Sakai et al., 2001), acute stress, anger, bereavement, chronic pain, cravings, and depression (Sakai et al., 2001). TFT researchers identified improvement in symptoms after even short individual one-session interventions, lasting under 30 minutes and up to an hour (Connolly et al., 2013; Connolly & Sakai, 2011; Darby, 2002; Folkes, 2002; Sakai et al., 2001, 2010). Those who utilized a group setting found positive results following sessions that lasted between 1 hour (Yancey, 2002) to 2 hours (Stone et al., 2009). Longer interventions were also studied, ranging from two 50-minute sessions (Irgens et al., 2012), to five 55-minute sessions (Irgens et al., 2017), and even 4 weeks (Reynolds, 2010), although the length of daily tapping was not documented in Reynolds' (2010) study. Improvements were maintained in follow-ups 1 week (Connolly et al., 2013; Irgens et al., 2012), 1 month (Darby, 2002; Folkes, 2002), 3 months (Irgens et al., 2012; Sakai et al., 2010), 4 months (Schoninger & Hartung, 2010), 6 months (Sakai et al., 2010), 1 year (Irgens et al., 2012, 2017; Sakai et al., 2010), and 2 years (Connolly & Sakai, 2011) post-treatment. Successful maintenance of results at follow-up, at

least in the study by Sakai et al. (2010), can be attributed to the development of a "culture of tapping" in which participants used their newly gained knowledge of tapping after the study ended and even taught it to others (Dunnewold, 2014; Sakai et al., 2010).

These successful results were reported regardless of trainer discipline or level of training. Successful results were observed when treatment providers were mental health professionals from different disciplines and experience, or experienced TFT providers (Darby, 2002; Irgens et al., 2012, 2017; Sakai et al., 2001, 2010; Stone et al., 2009); when providers were members of the community (non-mental health professionals; Connolly et al., 2013; Connolly & Sakai, 2011; Folkes, 2002; Robson et al., 2016); and when individuals treated themselves (Reynolds, 2010).

Combined, the findings support not only the effectiveness of TFT in reducing negative symptoms in a short time and alleviating distress, but also the possibilities of supporting healing via the training across disciplines of community agents (Connolly & Sakai, 2011; Sakai et al., 2001) and individuals.

Criticism Regarding TFT

Despite many studies that point to TFT having high success rates and many more clinical reports in support of tapping treatments (Andrade & Feinstein, 2004; Church, 2013; Gilomen & Lee, 2015; Irgens et al., 2012), many studies suffer from methodological flaws. Not all published studies have complied with APA research standards. A few have not been subjected to peer review (Andrade & Feinstein, 2004; Sakai et al., 2001), other TFT studies failed to apply randomization (Darby, 2002; Folkes, 2002; Sakai et al., 2001; Stone et al., 2009) or to include control groups that received other evidence-based treatments (Connolly et al., 2013; Connolly & Sakai, 2011; Darby, 2002; Folkes, 2002; Irgens et al., 2012; Robson et

al., 2016; Sakai et al., 2010; Schoninger & Hartung, 2010; Stone et al., 2009). One RCT controlled for use of other medications (Irgens et al., 2017), and in another study, participants were asked to not practice other therapies for the duration of the study (Darby, 2002). However, control for other treatments or medications was not reported by other researchers (Connolly et al., 2013; Connolly & Sakai, 2011; Folkes, 2002; Irgens et al., 2012; Reynolds, 2010; Robson et al., 2016; Sakai et al., 2001, 2010; Stone et al., 2009). In some of these studies (Connolly et al., 2013; Connolly & Sakai, 2011; Folkes, 2002; Robson et al., 2016; Sakai et al., 2010; Stone et al., 2009), people with PTSD in African countries were treated for trauma, and possibly controlling for medical and other therapies was irrelevant in those communities and cultures.

The dual role of researcher and treatment provider has also been criticized (Darby, 2002; Irgens et al., 2012; Sakai et al., 2001, 2010). However, these findings, joined with findings of TFT and EFT studies that have been designed and measured by higher standards (For a review: Church, 2013; Irgens et al., 2017), show support for the effectiveness of tapping. Irgens et al. (2017), for example, found that TFT yielded similar results as CBT, which is considered the gold standard for treatment of phobias; however, TFT therapy was faster (5 sessions instead of 12), and it better addressed the specific challenges that were addressed by the tapping protocol.

It is also important to remember that, although not always methodologically sound, many of these studies occurred in real-life settings that did not allow the researchers to control for all aspects of the study. Assigning participants to waitlist as control conditions could be regarded as a "necessary evil" when done in communities suffering from trauma, as

this allows mental health therapists and other practitioners to treat, with only limited delay, people in great need.

As alternative explanations for the success of TFT, researchers have pointed to possible effects of distraction of the participants from their challenges by the tapping motions. Another explanation might be the client-controlled level of exposure to the problem in an accepting, relaxation-promoting environment (Carbonell & Figley, 1999; Gilomen & Lee, 2015; Irgens et al., 2012). Although it is unlikely that the benefits documented in many studies were due only to exposure, expectations, and relaxation (Irgens et al., 2017), an improved methodology will help eliminate alternative explanations. The current study is a RCT. The two conditions are identical besides the intervention protocol itself, thus controlling for alternative explanations. I report a variety of physical and psychological characteristics relevant to this study, while controlling for others. Finally, safeguards have been taken against the dual role of researcher and treatment provider, as well as against the placebo effect.

Acupoints: Is Stimulating Acupoints Necessary?

Previous studies attempted to decipher whether engaging the acupoints is an active ingredient. In these studies, participants either followed the EFT protocol fully (tapped the subscribed acupoints) or tapped on areas either considered to not include acupoints, or to include acupoints unrelated to the challenge addressed (Reynolds, 2010; Rogers & Sears, 2015; Waite & Holder, 2003 as cited in Baker et al., 2009). Waite and Holder (2003, in Baker et al., 2009) found an effect of tapping on non-acupoints. Their participants practiced either EFT, or one of two forms of what they described as a placebo—non-acupoint tapping and tapping on a doll (following an EFT protocol). All were helpful in reducing trauma. They

concluded that the use of acupoints was not necessary (Baker et al., 2009). Baker et al. (2009) however, understood these results differently. They suggested that demand characteristics created by the very short 2- to 3-minute treatment and the use of a single self-report measure—the pre- and post-SUD—explained these results. Additionally, they suggested that acupoints were stimulated during the above-mentioned studies. The acupoints on the fingertips were probably stimulated in the placebo doll-tapping condition (Baker et al., 2009) and possibly in the non-acupoint tapping condition, as well. Rogers and Sears (2015) suggested their findings supported the need for both the cognitive and visceral components of EFT. They found that although students who tapped on non-acupoints had a reduction in stress symptoms, there was a significant difference between their improvement and the larger improvement of participants in the EFT group after a short 15- to 20-minute intervention. In this case, too, participants in the non-acupoint treatment tapped with their fingertips, possibly activating acupoints (Rogers & Sears, 2015). Reynolds (2010), too, found that participants in her placebo group who utilized a forearm tapping protocol showed significant drops in emotional exhaustion, one of three measures of burnout that were reduced in participants using the EFT protocol. She explained the efficacy of the placebo protocol with the timing of the post-measures, just before a 2-week break (Reynolds, 2010). Thus, despite evidence that stimulating acupoints and non-acupoints activates different brain areas (Huang et al., 2012), and the theoretical assumption that acupoint stimulation is needed (Ruden, 2005), it has not yet been fully established that tapping acupoints as subscribed by a specific protocol is central to successful results presented in TFT and EFT studies (Andrade & Feinstein, 2004). To contribute to this discussion, participants in this study either followed a subscribed TFT protocol for stress reduction, or they followed a sequence that was not a TFT protocol for

stress reduction (control-stimulation). Participants in the latter group followed one sequence that did not include acupoints expected to reduce stress, and stimulation was done with an open hand to prevent activation of the acupoints in the fingertips.

Theoretical Basis

TFT was not based on a theory, but developed through clinical exploration and observation (Mollon, 2007). Tapping was found to improve the measures of the central nervous system (heart rate variability and heart coherence), circulatory system (resting heart rate and blood pressure), endocrine system (cortisol), and the immune system (salivary immunoglobulin A), also providing indication for improved regulation of endocrines and genes (Bach et al., 2019). There is also evidence that tapping affected gene expression (Church et al., 2018). Yet, researchers are still attempting to explain the mechanism by which tapping works. Researchers explored the different components of the TFT technique via different methodologies, including brain imaging, and have added to the base of knowledge attempting to explain this mystery. Explanations from the realm of energy processes exist (Feinstein, 2012; Oschman, 2006), but no complete explanation for the mechanism of tapping exists by Western scientific standards. There are, however, several hypotheses. The mechanism is probably an interaction between the cognitive processing and biochemical response that results from tapping (Irgens et al., 2017; Lane, 2009). The sympathetic nervous system (SNS) generates the fight-flight-freeze response during which the hypothalamus, amygdala, hippocampus, and other midbrain areas relevant to stress and trauma are activated. This response precedes a person's cognitive awareness of danger. Acupoint stimulation was found in fMRI studies to downregulate the amygdala and the fight and flight response (Huang et al., 2012; Lane, 2009). However, the SNS can also be activated by thinking about

a stressful event, or cues in the environment previously associated with harm or danger (Lane, 2009). Conditioning (Lane, 2009; Ruden, 2005) or exposure and desensitization (Irgens et al., 2017; Lane, 2009) might explain the mechanisms which occur on the cognitive level. When the cognition is processed while downregulating the stress response, memory is reconsolidated with intact details of the event, but without the negative emotional and bodily response (Ruden, 2005). Thus, researchers introduced explanations combining behavioral psychology and psychobiology to explain the psychological and biochemical responses to tapping:

Acupoint Stimulation (Acupressure)

TFT has roots in Eastern medicine. According to traditional Chinese medicine, life energy, or chi (qi), flows in the body through the meridian system, which is comprised of 12 bilateral channels and two central vessels. The meridian system is an invisible network that connects the fundamental substances and organs and bridges the internal and external parts of the body. Acupuncture is the traditional healing practice in which needles are inserted into areas on the meridian system (acupoints) where the skin's electrical resistance is lower (Swingle et al., 2004). Acupoint stimulation has been practiced for over 2,000 years (Huang et al., 2012). The basic assumption of acupuncture is that the internal flow of energy can be altered by treating the body externally (Swingle et al., 2004). This stimulation impacts substances that flow through the meridians and into the organs. The meridians relate to emotions, not only organs. Hence, when energy in the meridian is out of balance, so is the emotion that corresponds to that meridian (Andrade & Feinstein, 2004; Darby, 2002; Schoninger & Hartung, 2010).

Acupressure has been found to impact the functioning of brain areas, the nervous system, hormones, neurotransmitter secretion, and gene expression (Lane, 2009). Studies found that acupuncture impacts brain activity in different regions. Huang et al. (2012) conducted a descriptive analysis (149 papers) and a meta-analysis (34 papers) of studies that used fMRI to measure brain activity resulting from needle-based acupuncture. They found different brain activity for acupoints that lay on different meridians and concluded that acupuncture elicited activation or deactivation responses in brain areas related to affective, cognitive, and somatosensory processing (Huang et al., 2012). The decreased activation was detected in the limbic system including the amygdala, brain stem, and other midbrain areas, thus contributing to the regulation of the fight, flight, freeze response. Manual stimulation of acupoints was found to increase the production of neurotransmitters like serotonin and GABA, regulate cortisol, and encourage secretion of endogenous opioids. The resulting inhibition of the fight, flight, and freeze response increased regulation and calmness, and reduced pain (Lane, 2009). Stimulation of acupoints by a nonpenetrating method (skin pressure using a non-penetrating needle) was found to be clinically equivalent to acupuncture using needles (Takakura & Yajima, 2009). This finding suggests that acupoint stimulation by tapping might also have the same effect (Lane, 2009). Indeed, R. Callahan assumed that the action of tapping puts pressure on meridian points, stimulating the body's internal electromagnetic energy, resulting in the collapse of the perturbation (R. Callahan & Callahan, 2000; R. Callahan & Trubo, 2001).

Energy Processes

Feinstein's (2012) account of energetic processes was based on the explanation by Oschman (2006) that acupoint stimulation sends electromagnetic signals a certain distance

(Feinstein, 2012; Oschman, 2006). According to Oschman (2006), the meridian system is part of the “living matrix,” which has semiconductive properties. Components of the matrix respond independently of the nervous system, and together with it, they play a role in response to trauma and adversity. The living matrix is hypothesized to be the location of the subconscious. Oschman (2006) assumed that trauma, for example, registers in the subconscious before the "conscious" nervous system registers it. Energy psychology methods thus treat a person’s unconscious experiences via the meridians while the person is conscious of the negative event. This results in the change of the person’s conscious experience (Oschman, 2006).

Researchers have offered additional evidence for the immediate energetic effects of tapping, although these studies engaged only a small number of participants to allow making conclusive claims. After a TFT or EFT treatment, abnormal quantitative EEG patterns presented as normal (Diepold & Goldstein, 2009; Swingle et al., 2004). Additional studies demonstrated a change in EEG patterns that indicated the reduction of anxiety following energy interventions (Lambrou et al., 2003; Lane, 2009). The effect of treatment in the case study by Diepold and Goldstein (2009) was specific to the protocol administered, indicating the importance of the tapping sequence, and was sustained 8 years post-treatment (Diepold & Goldstein, 2009). Treatment success was suggested to be related to the frequency of application of the protocol (Swingle et al., 2004).

Conditioning/Counterconditioning

The negative cognition held by the person is viewed as a conditioned stimulus (CS) and the negative emotion or maladaptive response as the conditioned response (CR; Lane, 2009; Ruden, 2005). Bringing a thought (the CS) into awareness encourages the secretion of

glutamate. The action of tapping encourages secretion of both serotonin and GABA, which inhibits glutamate activity and prevents protein secretion. These biochemical responses affect neural circuits in the prefrontal cortex and the amygdala, preventing messages from the former from reaching the latter (Ruden, 2005). The triggering thought is still present while amygdala activation lessens. The hippocampus then records the new neural relationship between the memory and the reduced—or lack of—a stress/threat response. Memories can then be brought to the surface without the previous resulting anxiety (Feinstein, 2012). The familiar negative conditioned response to the thought does not occur, and the stressful feelings are reduced. As Ruden (2005) explained, the innate unconditioned source of fear is also disconnected in the amygdala level (for example, an innate, unconditioned fear of death was conditioned to be represented by snakes as a stimulus). The model offered by Ruden (2005) views tuning into the thought field—the conscious awareness of the event or object of negative feeling, to be necessary for success. Healing cannot occur on the biochemical level without the presence of glutamate, which is secreted while this disturbing thought is activated (Ruden, 2005). The process of tapping while bringing the negative thought to cognition can be viewed as a process of counterconditioning—the replacement of the maladaptive conditioned response with a new conditioned response (relaxation) when the conditioned stimulus (negative thought) is present (Lane, 2009; Ruden, 2005).

The model is compelling; however, it does not explain the breadth of TFT. Ruden (2005) suggested that the multi-sensory stimulation of tapping protocols (tapping, eye movements, humming) causes serotonin secretion in the entire brain, not only in the prefrontal cortex (localized secretion in the prefrontal cortex is typical to desensitization techniques; Ruden, 2005). However, this does not explain why, if the biochemical reaction

occurs in the entire body, some algorithms (specific sequences of tapping points, for a certain problem) were found by Andrade and Feinstein (2004) to work better than tapping on meridian points that are not specific to the problem. Ruden (2005) himself also indicated that the model does not provide a full explanation of the benefits observed by tapping in cases such as surrogate tapping (tapping on one's self while touching the person who is in need of tapping; Ruden, 2005). Additionally, in recent years, tapping has been used to support personal growth, and not just the elimination of negative cognitions and feelings (J. Callahan, 2018).

Exposure and Desensitization

As an alternative explanation to conditioning, Irgens et al. (2017) suggested that tapping could be understood through the emotional processing theory, as enhancing the effect of imaginary exposure. According to this theory, emotional processing is facilitated when the client is emotionally connected with the issue of concern while feeling in control. Self-tapping reminds the "tapper" of the present time and place, as opposed to the time and place of the aversive experience. Additionally, the presence of the therapist, the known tapping protocol, and the ability to choose the level of exposure to the aversive thought allow the individual to feel in control. These conditions of control and safety might allow the client to express intense feelings otherwise suppressed, resulting in the reduction of the intensity of negative feelings (Irgens et al., 2017).

Energy psychology can also be viewed as combining exposure therapy and cognitive therapy, enhanced by acupoint stimulation. The new state of relaxation in the parasympathetic system, created by acupressure through the regulation of activity in the structures of the midbrain (amygdala, hippocampus), might be linked to the stressful thought

or memory in a new way. When relaxed, blood flow increases to the neocortex, allowing for better cognitive processing of information and behavior change (Lane, 2009). Indeed, a reduction in cortisol, the stress hormone, after one session, was documented in participants who received EFT compared to those who received supportive counseling or no treatment (Church et al., 2012).

Memory

Results from recent studies in the area of memory show that memories change each time they are recalled, and that the way people process and remember memories depends also on the emotional state they are in when they are recalling the memory (Bridge, 2012; Levine, 2015). It seems that changing the emotional state helps consolidate the memory in a new way. As Callahan and colleagues observed, when practicing TFT the memory is not changed, but the negative feelings associated with it are eliminated (R. Callahan & Callahan, 2000; R. Callahan & Trubo, 2001).

To conclude, TFT (as other energy psychology techniques) still lacks established theoretical mechanisms behind its effects (Irgens et al., 2012). Indeed, the mechanisms by which tapping works are still under investigation. However, as previously described, researchers have started to identify possible routes for how tapping might reduce anxiety and other symptoms.

The Choice of TFT for this Study

TFT was chosen for this study because it is an evidence-based technique suitable for studying stress reduction. TFT and EFT were applied successfully in many studies for a variety of psychological challenges, and EFT was included in a review of commonly used evidence-based stress reduction techniques as a helpful technique (Varvogli & Darviri, 2011).

Callahan himself was convinced that TFT is the most powerful technique for stress reduction, eliminating the stress response of the sympathetic branch of the autonomic nervous system (ANS) almost immediately (R. Callahan & Trubo, 2001). Participants (not P-ASD) in past studies have been treated for acute stress, work stress, and relationship stress in a clinical setting with an indication for reduction in measures for all these types of stressors (Sakai et al., 2001). Finally, providing this intervention is within my scope of competence. I am trained in TFT at the Basic Algorithm and the Diagnostic levels. Additionally, I am a licensed marriage and family therapist (CA, USA) and a developmental psychologist (Israel).

To my knowledge, in this study TFT was applied for the first time as a self-help stress reduction tool for P-ASD, a group found to be under considerable general and parenting-related stress. The many possible benefits and relatively limited, rare risks described make this technique appealing, and positive findings have great implications for the support of P-ASD and other members of the wider community who are under stress. I was not able to find studies by TFT or EFT researchers that targeted empathy. Thus, the effect of TFT on empathy was also explored for the first time.

Summary

P-ASD were previously identified as a group under very high stress. In this study, P-ASD used TFT, for the first time to my knowledge, as a self-help technique to reduce stress. I compared a group that stimulated acupoints according to a TFT protocol, with a group that followed a sequence that did not stimulate acupoints (control-stimulation), but otherwise received similar instruction. Stimulating non-acupoints was previously found to be as effective as tapping on acupoints (Baker et al., 2009; Reynolds, 2010; Rogers & Sears, 2015), despite theoretical explanations suggesting it should not be so (Ruden, 2005).

However, these non-significant differences might have been due to methodological flaws, as previously described. My hypotheses regarding the effect of TFT on stress were

1. P-ASD in the TFT protocol condition will report a greater reduction in stress levels (as measured by the PSS and PSI/SF-3e) at the second measurement (T2, post-intervention), than P-ASD in the control-stimulation condition.
2. (a) P-ASD in the TFT protocol condition who continue applying the TFT protocol between the second and third measurements (T2-T3) will report lower stress levels at T3 (measured by the PSS and PSI/SF-3e), than parents in the control-stimulation condition.

   (b) P-ASD in the TFT protocol condition who continue applying the TFT protocol between the second and third measurements (T2-T3) will report lower stress levels at T3 (measured by the PSS and PSI/SF-3e), than parents in TFT protocol condition who do not continue to apply the TFT protocol.

Empathy can be elicited via affective or cognitive routes (Decety & Jackson, 2006; Walter, 2012), and emotion regulation supports this experience (Decety & Jackson, 2006; Eisenberg, 2000). Stress reduction through the visceral, physical route or the emotion regulation-cognitive path can potentially create change in empathy. Researchers suggested exploring interventions that target stress regulation and stress reduction to support the empathic abilities of people with lower dispositional empathy (Hiraoka & Nomura, 2017) or to buffer against non-empathic behaviors (Mills-Koonce et al., 2009). Findings suggest that empathy can change following an intervention, and that perspective taking might be easier to change compared to other components of empathy (Bazarko et al., 2013; Konrath, 2013; Lamothe et al., 2016). Hence, the hypotheses:

3. P-ASD in the TFT protocol condition will report a greater increase in levels of perspective taking (as measured by the IRI-PT) at the second measurement (Time 2), than P-ASD in the control-stimulation condition.
4. (a) P-ASD in the TFT protocol condition who continue applying the TFT protocol between the second and third measurements (T2-T3) will report higher levels of perspective taking (measured by the IRI-PT) at T3 than parents in the control-stimulation condition.

   (b) P-ASD in the TFT protocol condition who continue applying the TFT protocol between the second and third measurements (T2-T3) will report higher levels of perspective taking (measured by the IRI-PT) at T3 than parents in the TFT protocol condition who do not continue to apply the TFT protocol.

Having BAP characteristics might pose a risk for additional stress and decreased empathic abilities. Hence, the hypotheses:

5. Parents with above-cutoff BAP scores (BAP-AC):

   (a) Will have higher stress levels (as measured by the PSS and PSI/SF-3e), in all conditions and all measurement times, compared to parents with below-cutoff BAP scores (BAP-BC).

   (b) Will have lower "other-oriented" empathy (measured by the IRI-PT and IRI-EC [Empathic Concern]), in all conditions and all measurement times, compared to P-ASD with below-cutoff BAP scores (BAP-BC). Parents with BAP-AC and parents with BAP-BC will not differ on measures of "self-oriented" empathy (IRI-FS [Fantasy Scale]) and IRI-PD [Personal Distress]).

6. P-ASD with above-cutoff BAP scores (BAP-AC; as measured by BAPQ) in all conditions will have lower scores on measures of cognitive empathy (measured by the IRI-PT and IRI-FS) than emotional empathy (measured by the IRI-EC and IRI-PD).

CHAPTER THREE

METHODOLOGY

In this chapter, I present the research questions and introduce the quantitative culture of inquiry chosen for this study. I describe the study design, including the setting, participants, and measures used.

Research Questions

The research questions for this study were

1. How does applying a stress reduction sequence—a formal TFT protocol vs. control-stimulation, impact the stress and empathy levels of P-ASD over time?
2. Does stress reduction mediate the effect of the interventions on empathy (if an effect is found)?
3. How does having BAP characteristics above a cutoff score (BAP-AC) affect the stress and empathy levels of P-ASD compared to those with below-cutoff BAP characteristics (BAP-BC)?

Culture of Inquiry

This study is designed based on the quantitative method of inquiry. The goal of the quantitative method of inquiry is to identify relationships between variables, and to explain, predict, confirm, and generalize the findings. To achieve this, research questions yield hypotheses that include predictions or expectations in a way that allows rejection based on the data collected. In this type of study, the research setting is planned and controlled, and the researcher's stance is objective (Braun & Clarke, 2014). This objectivity also means that the research should be independent of the researcher, implying that the data measure reality (Webster, 2007). In this deductive way of inquiry, data are gathered with predetermined

experimental or other data-collecting tools such as questionnaires or surveys that allow generating numerical or categorical information (Braun & Clarke, 2014; Webster, 2007). For example, questionnaires will include response categories limited in advance by the researcher (e.g., yes/no; never, sometimes, frequently, always; Braun & Clarke, 2014).

Gravetter and Forazno (2016) described five basic research strategies. The researcher using a descriptive strategy will aim to describe specific characteristics of a specific group of individuals as they exist naturally, while a researcher using a correlational strategy will measure two variables for each individual in the group. In experimental, quasi-experimental, and non-experimental strategies, the researcher compares two or more groups on the variables measured. In a non-experiment, the researcher will compare more than one group measured on one variable. The researcher using the experimental research strategy aims to demonstrate a cause-and-effect relationship between the variables measured. Experimental designs must adhere to strict criteria of manipulation of the independent variable; measurement of the dependent variable in the different groups included in the study; comparison of the scores obtained by participants in the different groups, a difference indicating the effect of the manipulation; and control over other variables that might influence the dependent and independent variables. A quasi-experiment has a design that does not adhere to one of the four criteria above; therefore, the researcher is unable to provide an unambiguous explanation for the cause-and-effect relationship between the variables (Gravetter & Forazno, 2016). The data collected are analyzed using statistical methods, they are presented using statistical descriptions, and findings are reported by using parametric or non-parametric data. A significant result indicates that something that exists in the world was rightfully identified. Interpretation many times results from comparison (e.g.,

before-after, comparing groups; Braun & Clarke, 2014).

This study was a quasi-experiment employing two treatments with a series of three measuring times. It was a mixed design, with treatment as a between-participant factor and measurement time as a within-participant factor.

Setting

The COVID-19 pandemic spread globally starting in early 2020, shortly prior to the initiation of this study. P-ASD from Israel and the USA participated in this study. Participants from Israel joined the study between May 19 and October 19, 2020. On March 16, 2020, residents of Israel were asked to shelter in place, with restrictions on many daily life activities, affecting family dynamics, social interactions, work conditions and employment, children's educational settings, health, and more. By May, when recruitment started, people were still adjusting to the "new normal" and changes in policy regarding behavior under the pandemic. Special education schools, which some children with ASD attend, remained open. Participants from the USA (four were from other English-speaking countries) joined the study between September 21 and November 17, 2020. When the study was initiated in the USA, people had been living under pandemic restrictions for a few months, and those were dependent on the state in which participants resided. On the national level, Americans were experiencing social unrest and protest with the rise of the Black Lives Matter movement into public attention, as well as preparing for a presidential election. All these and more were potential sources of stress, unique to the time and circumstances in which this study was conducted.

The study was web-based, as planned prior to the pandemic, to eliminate location and time barriers to participation of P-ASD. Online questionnaires were sent to participants via

an individual link directing them to a survey on the Qualtrics platform, which included all the questionnaires administered. The intervention included live 30-minute individual trainings that I held via Zoom, an online video communication platform. Participants practiced the assigned protocols in their natural environments, most likely in their homes due to social distancing restrictions during the COVID-19 pandemic, including work from home requirements.

Participants

Participants were 56 mothers and seven fathers, biological or non-biological parents of children with ASD (P-ASD). Children were reported by their parents to have been formally diagnosed with ASD and were up to 12 years old. Exclusion criteria included parents of children not formally diagnosed with ASD or with no children with ASD under the age of 12 years; parents with a current mental disorder or taking medications. Due to a collection error, some participants with a current mental health diagnosis or who took medication, were not excluded. I refer to this in the results and discussion chapters. Expectant mothers or parents with cancer were excluded. This was to eliminate the possible effects of concurrent medical or psychological treatments. Additionally, stimulating acupoints in patients with cancer might require attending to unique safety issues (Zia et al., 2017), which were not part of this study design. Parents with no access to a phone, computer, Internet, and/or the Zoom platform were also excluded from participating in the study. Only one parent per household was eligible to participate (Inclusion/Exclusion questionnaire: Appendix E [Eng.] and Appendix F [Heb.]). The participants volunteered to participate in a study exploring stress reduction strategies, empathy, and parental characteristics (i.e., BAP).

Instruments

I designed a demographics and personal information questionnaire, a post-intervention questionnaire, a follow-up questionnaire, and an administration sheet and journal for participants to use during the intervention period. I also used established measuring tools: I used the Perceived Stress Scale (PSS-10) to measure general stress, the Parent Stress Index, Short Form, 3rd edition (PSI/SF-3e) to measure parenting stress, the Interpersonal Reactivity Index (IRI) to measure empathy, and the Broad Autism Phenotype Questionnaire (BAPQ) to measure these characteristics in the participants. The questionnaires are presented in the order in which they were introduced to participants.

Demographics and Personal Information Questionnaire

The parents filled out demographic and personal information questionnaires about themselves and their child with ASD. A limited number of questions were tailored to nationality [Appendix C [Translation of Hebrew version, and adaptations made for Eng. version], Appendix D [Heb.]). Parents with more than one child with ASD under the age of 12 years were instructed to focus on one child throughout the study when answering questions relating to "the child with ASD." Example items include child's age at diagnosis, child's additional diagnosis, who is the child's main caretaker.

Perceived Stress Scale (PSS-10)

Stress was assessed with the Perceived Stress Scale (PSS-10; Cohen et al., 1983; Appendix G [Eng.], Appendix H [Heb.]). This self-report tool assesses the subjective experience of life events as being unpredictable, uncontrollable, and overloading. The questions are general in nature, all referring to experiences in the past month, to capture objective events that are still affecting the respondent's stress levels. The assessment includes

10 items, six phrased negatively and four positively, scored on a 5-point scale from 0 (*never*) to 4 (*very often*). Example items include, “In the last month, how often have you: been upset because of something the happened unexpectedly?, felt nervous and stressed?, felt that things were going your way?” (Cohen et al., 1983; Cohen, 2015). The PSS is suitable to use in community samples, with people with at least a junior high school level of education (Cohen et al., 1983).

The PSS is not a diagnostic instrument, and there are no score cutoffs, although higher scores indicate higher stress levels and a greater inability to cope. Comparisons of participants’ scores can be done within the sample (Cohen, 2015). Although not tested in the original study, the authors suggested that by comparing the results of repeated administrations, chronic stress can also be assessed (Cohen et al., 1983).

Evidence for the reliability and validity of this tool comes from various studies with clinical and non-clinical participants (for a review, see E.-H. Lee, 2012), and from different countries and cultures, such as Greece (Andreou et al., 2011), Brazil (Siqueira Reis et al., 2010), and Iran (Maroufizadeh et al., 2014), to name a few.

Reliability

In the original study by Cohen et al. (1983), reliability was reported as .84 to .86. Test-retest reliability was .85 for 2 days, and .55 for 6 weeks. In a 2012 systematic review, internal consistency reliability and test-retest reliability of the PSS-10 were confirmed. The internal consistency reliability ranged between .74 and .88 in the 12 studies reviewed. The test-retest reliability was >.70 in four studies identified in which retest was done within a week and up to one month from the original testing reliability (E.-H. Lee, 2012). Researchers have suggested that the negatively phrased items represent perceived helplessness/general

distress (6 items), while the positively phrased items indicate feelings of self-efficacy (4 items). Findings have been inconsistent; however, they seem to be in support of a two-factor structure (B. Lee & Jeong, 2019; E.-H. Lee, 2012; Maroufizadeh et al., 2014; K. J. Smith et al., 2014).

Validity

E.-H. Lee (2012), in a review of the psychometric properties of the scale, mentioned that criterion validity was evaluated in only a few studies reviewed and was found to be weak to moderate. Additionally, it was unclear if the criteria used were the gold standard for the PSS. Hypothesis testing done in the systematic review revealed that the PSS was moderately or strongly correlated with hypothesized emotional variables, such as anxiety and depression (E.-H. Lee, 2012). The validity of the PSS was not affected by age and sex in the original study (Cohen et al., 1983); however, a few studies did find gender differences, with women having higher PSS scores than men (E.-H. Lee, 2012). The PSS is a predictor of health and health-related outcomes, although the predictive value decreases within 1-2 months (Cohen et al., 1983).

The English version (last updated 4/10/19), as well as a translation into Hebrew, are freely available on the web page for Dr. Cohen's lab at Carnegie-Mellon University (Cohen, 2015). I also translated the PSS-10 form into Hebrew and compared it to the translation found online. The original Hebrew translation referred to males only; therefore, I adapted the language to be inclusive.

Parent Stress Index, Short Form, 3rd Edition (PSI/SF-3e)

The stress related to parenting a child with ASD was assessed with the Hebrew and English versions of the Parent Stress Index, Short Form, 3rd edition (PSI/SF-3e), licensed for

use from the publisher (Appendix A [Eng.], Appendix B [Heb.]). There is a fourth version of the PSI/SF that does not have a formal translation to Hebrew and therefore could not be used in this study. Participants were asked to think of their child with ASD, or if more than one child with ASD, to think of their child with ASD that causes them the most stress, when completing this questionnaire for the first time, and thinking of this child going forward.

The PSI/SF-3e (Abidin, 1995) is a self-report tool for parents of children between the ages one month to 12 years. It is intended to screen for stress in the parent-child relationship and identify areas that pose a risk to the parent's or child's behavior. Parents answer 36 statements on a 5-point Likert scale, ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The questionnaire can be completed in 10 minutes. Researchers and clinicians can generate a Total Stress score, created from three subscales on the domains of Parental Distress (PD), Parent-Child Dysfunctional Interaction (PCDI), and Difficult Child (DC). The Parental Distress (PD) subscale measures the parent's distress due to personal factors directly related to parenting. These can include restrictions on other life roles, depression, and social support. The Parent-Child Dysfunctional Interaction (PCDI) subscale assesses whether the parent's expectations from the child are met and if the relationship with the child is satisfactory. The Difficult Child (DC) subscale assesses the extent to which the parent experiences the child as difficult to manage, due to behavior characteristics (Abidin, 1995). Statements include, "I feel trapped by my responsibilities as a parent" (PD), "My child rarely does things for me that make me feel good" (PCDI), and "My child makes more demands on me than most children" (DC). Clinical significance is reached at the 90th percentile (Zaidman-Zait et al., 2010). Scores on a reliability scale (Defensive Response) allow

researchers to identify parents who undermine stress, lack emotional engagement with their child, or alternatively, have excellent parenting skills (Abidin, 1995).

Short versions of the PSI have been used to assess stress in different cultures (Aracena et al., 2016; Luo et al., 2019) with families with children of various developmental challenges and illnesses (Aracena et al., 2016; Barroso et al., 2016; Ionio et al., 2017; Reitman et al., 2002), including ASD (Brobst et al., 2009; Dardas & Ahmad, 2014; Hayes & Watson, 2013; E.-H. Lee, 2012; Miranda et al., 2019; Zaidman-Zait et al., 2010). However, researchers have recently recommended that interpretation of the results for the PCDI and the DC subscales be done with caution when used with P-ASD. Zaidman-Zait et al. (2010) found that some items might not adequately capture parental stress of parents of children under age 6 years old with ASD (Zaidman-Zait et al., 2010). Similarly, a study by Dardas and Ahmad (2014) done in Jordan found an advantage of a 30-item questionnaire for this population. The new scale was created by omitting three items from each of the PCDI and DC subscales and moving two items from the PCDI to the DC subscale (Dardas & Ahmad, 2014). The Parental Distress subscale remained stable compared to the original subscale in the studies by Zaidman-Zait et al. (2010) and Dardas and Ahmad (2014), supporting a fit across cultures.

Reliability

Internal consistency (Cronbach's alpha) was .91 (Total Stress scale), .87 (Parental Distress), .85 (Difficult Child), and .80 (Parent-Child Dysfunctional Interaction). Internal consistency assessed for Head Start parents was .90 (Total Stress), .79 (Parental Distress), .8 (Parent-Child Dysfunctional Interaction), and .78 (Difficult Child). For a normative sample, test–retest reliability coefficients of the total stress score over a 6-month period were reported

to be .84 (Total Stress score), .85 (Parental Distress), .78 (Difficult Child), and .68 (Parent-Child Dysfunctional Interaction; Abidin, 1995).

Validity

The PSI-SF was developed from factor analysis of the full-length PSI. The correlation between the PSI and PSI-SF was .94 for the Total Stress scale, .92 for the PD subscale, and .87 for the DC subscale. The PCDI subscale, comprised of two subscales from the full-length PSI, correlated .73 with the Child Domain, and .50 with the Parent Domain subscale of the full length PSI (Abidin, 1995). Construct validity was found for nonclinical, clinical, and diverse samples for validity types: convergent/concurrent, discriminant, sensitivity to theoretically distinct groups; for clinical samples in the area of sensitivity to change; and for nonclinical and diverse samples in the areas of intervention effects and factorial validity (Wu, 2017). Validity has been investigated in multiple studies with participants with various social, health, behavioral, and mental challenges, and in different cultures. An extensive list of validity studies can be found at http://people.virginia.edu/~rra/validity.html.

Interpersonal Reactivity Index (IRI)

The IRI (Davis, 1980, 1983) was used to measure dispositional empathy (Appendix I [Eng.], Appendix J [Heb.]). Empathy is considered multidimensional, containing both cognitive and emotional components in distinct, yet related constructs. This self-administered instrument includes four 7-item scales, each a separate construct related to empathy. Two scales measure typical emotional reactions. The Perspective Taking (PT) scale and Empathic Concern (EC) are “other-oriented.” Perspective Taking measures a person’s cognitive tendency to spontaneously adopt the other person’s point of view (“When I'm upset at someone, I usually try to ‘put myself in his shoes’ for a while“). Empathic Concern (EC)

measures the reported tendency to feel sympathy and compassion toward others (“I would describe myself as a pretty soft-hearted person”). The Personal Distress scale (PD) and the Fantasy Scale (FS) are “self-oriented.” The Personal Distress scale measures the tendency to experience distress and discomfort in response to others’ extreme distress (“In emergency situations, I feel apprehensive and ill-at-ease”). The Fantasy Scale (FS) measures the tendency to transpose one’s self imaginatively into the feelings and actions of fictional characters (“I really get involved with the feelings of the characters in a novel”). The scales are separate constructs, related in specific and specifiable ways with psychological measures such as self-esteem, emotionality, social competence, and sensitivity to others (Davis, 1980, 1983). There is no total measure of empathy, and the scales should be used separately (Konrath, 2013). Responses on the 28 items are rated on a 5-point scale. "A" indicates the item *Does not describe me well* and is assigned a value of 0. "E" indicates the item *Describes me very well* and is assigned a value of 4. Some items are reverse-coded (Davis, 1980). The tool does not have norms or cutoff scores and is intended to be used as a continuous measure (Konrath, 2013).

Reliability and Validity

In the original study, internal reliabilities for each of the four scales ranged from .70 to .78. Test-retest reliability after 60-75 days for the four scales ranged from .62 to .81. Females scored higher than males on all four scales (Davis, 1980). In the 1983 validation study, the scales were found to be separate constructs, related in specific and specifiable ways with psychological measures such as self-esteem, emotionality, social competence, and sensitivity to others (Davis, 1983).

The IRI has been widely used as a measure of empathy in the USA and internationally (Decety et al., 2010; Endedijk et al., 2019; Engert et al., 2014; Galantino et al., 2005; Gonzalez-Liencres et al., 2016; Hiraoka & Nomura, 2017; Ho et al., 2014; Lamothe et al., 2018; Schonert-Reichl et al., 2015; Tomova et al., 2014; Zhao et al., 2019).

The Hebrew version was originally translated from English by Even (1992). Based on measures from 398 participants, validation of all scales ranged from .80 to 1.00. Reliability was calculated for two scales only, Personal Distress (.65) and Empathic Concern (.68; Even, 1992). Recently, Motola and Zehavi (2016) found reliability measures for all four scales (Cronbach's alpha) ranging from .64 to .79 within their Israeli participants (Motola & Zehavi, 2016). The translation to Hebrew used in this study is based on a publication by the Israeli Ministry of Health (Palgi, 2019). I made minimal changes for clarity and accuracy.

Broad Autism Phenotype Questionnaire (BAPQ)

This 36-item questionnaire by Hurley et al. (2007) was developed in participation of P-ASD previously identified by the researchers to exhibit characteristics of BAP. Therefore, as noted by the authors, the sample is not representative of P-ASD selected from the community (Hurley et al., 2007; Ingersoll et al., 2011; Appendix K, [Eng.]). The BAPQ assesses personality and language characteristics along three dimensions that constitute key features of autism—aloof personality, rigid personality, and pragmatic language. People with an aloof personality lack interest in, or enjoyment of, social interactions. A sample item is, "I prefer to be alone rather than with others." People with a rigid personality do not like change or have a difficulty adjusting to it (e.g., "I am flexible about how things should be done"). Finally, people with a pragmatic language difficulty will have challenges communicating effectively or holding a reciprocal continuous conversation due to deficits in the social

aspects of language ("People ask me to repeat things I've said because they don't understand"; Hurley et al., 2007; Seidman et al., 2012).

Items are rated on a 6-point Likert scale ranging from 1 (*very rarely*) to 6 (*very often*). The individual's scores are averaged to compute a score for each subscale (12 items each) and a final score (36 items), ranging between 1 and 6. Higher scores suggest more traits of BAP. The cutoff scores by gender were for males: 3.25 (Aloof personality); 3.65 (Rigid personality); 2.95 (Pragmatic language); and 3.35 (Total score). For Females, cutoff scores were 3.0 (Aloof personality); 2.7 (Rigid personality); 3.25 (Pragmatic language); and 3.25 (Total score). Inter-item reliability was .94 for the Aloof subscale, .91 for the Rigid subscale, .85 for the Pragmatic Language subscale, and .95 for the Total score. Sensitivity and specificity were at or above 70% for all subscales, and specificity was over 80% for the Aloof and Rigid subscales. Sensitivity and specificity were approximately 80% for the total BAPQ score. Informant ratings were also utilized when developing the tool. Informant scores were not significantly different from self-reports. However, sensitivity and specificity of the informant version was higher than self-reports on all subscales and the total score. An exception is an equal sensitivity of self and informant reports on rigidity (Hurley et al., 2007). Although adding informant reports to the self-reports would have been preferable, I only used the self-reports due to feasibility.

Sasson, Lam, et al. (2013) established new cutoff scores, using a larger sample of P-ASD and parents of typically developing children, without preselecting the P-ASD group to exhibit BAP characteristics, as done in the original study by Hurley et al. (2007). These cutoff scores were used in the current study. The new cutoff scores found in the study by Sasson, Lam, et al. (2013) were for males: 4.13 (Aloof personality); 3.23 (Pragmatic

Language); 3.91 (Rigid personality); 3.55 total score, and for women: 3.45 (Aloof personality); 2.94 (Pragmatic Language); 3.7 (Rigid personality); 3.17 (Total score). The new cutoff scores increased specificity, reported as over 92% for women on all scales, and 100% for men on all scales besides Pragmatic Language (82%). Sensitivity, however, was reduced, reported as 20-33% for women on the Rigidity, Pragmatic Language, and Total score scales and 67% on the Aloof personality scale. Sensitivity scores for men were reported as 33% and 38% for Pragmatic Language and Rigidity, and 60% to 83% for Aloof personality and the Total score. Internal consistency for self-report was .8 for all scales (Sasson, Lam, et al., 2013).

Ingersoll et al. (2011) evaluated three self-report measures of BAP based on their internal consistency, distribution of scores, factor structure, and criterion-related validity in a non-clinical sample. The BAPQ fared best. The internal consistency reliability coefficient was acceptable (Cronbach's alphas >.70). Sex differences were identified, with men scoring higher on the Total scale, the Pragmatic Language scale, and the Aloofness scale. The factor structure was anticipated and replicable (Ingersoll et al., 2011). A translation into Hebrew, used in this study (Appendix L), was created by Seidman et al. (2012), in communication with one of the developers of the tool.

Administration Sheets and Journals

The administration sheets (one for each condition and each language), created for this study, included the tapping sequence, an illustration of the tapping points, reminders, and a link to an "unlisted" YouTube video of me demonstrating the protocols. I created two videos, one for each condition, and recorded the instructions for each protocol by using voiceover, once in Hebrew and once in English. Thus, the videos for participants in the USA

and Israel in both conditions were identical, differing by language only.

Based on Reynolds (2010), journals were used as an aid for participants to be organized and measure their success. Administration sheets and journals included a non-comprehensive list of possible stressors to potentially be used when tapping, and a designated space to list the stressors the participant chose to think of while tapping. Among other items, journals included space to list the SUD (pre and post procedure) and the length of time of tapping. Participants were informed that the journals would not be collected at the end of the intervention period, but that some of the information would be requested in the post and follow-up questionnaire. For example, listing the cognition/stressor utilized while applying the protocol was an optional item. A link to the relevant video demonstration was included in each of the administration sheets. To minimize the differences between the conditions, the videos for both conditions included the same introduction segment, and when applying the different protocols, participants were instructed to think about their possible different feelings (anger, guilt, shame, etc.) in the same order. The length of the videos differed about a minute in length (6:43 min for the TFT protocol and 5:39 min for control-stimulation, respectively). To control for a possible placebo effect due to expectation, the conditions were referred to in all materials and correspondences, as “Orange” (TFT protocol group) and “Banana” (control-stimulation group). These neutral names also have the same number of letters in both Hebrew and English (Appendix M [Eng. TFT protocol, ”Orange” group], Appendix N [Eng. Control-stimulation, ”Banana” group], Appendix O [Heb. TFT protocol, ”Orange” group], Appendix P [Heb. Control-stimulation, ”Banana” group]). The action of touching acupoints or other areas of the body was referred to as “stimulation” (not “tapping”) in both conditions during the training and in the videos.

Post-Intervention Questionnaire

This 11-item questionnaire was intended to control for compliance with practice of the protocol and length of administration and achieve insights into the stressors of parents (Appendix Q [Eng.], Appendix R [Heb.]). Forced choice questions included a subjective estimate if the protocol helped deal with stress (yes, no, maybe); an estimate of the frequency of daily tapping (one, two or three); length of tapping on most days (categories); topics tapped on (related to child, unrelated to child, both); number of times they watched the video while tapping (categories); If others tapped along (yes/no), their relationship to the participant; changes observed in different aspects of life, if at all. Open-ended questions included the number of days the protocol was followed; cognitions while tapping (optional item); any additional information the participants would like to share. The last item asked participants to continue maintaining confidentiality regarding their protocol/sequence for the remainder of the study.

Follow-up Questionnaire

This 12-item questionnaire included the 11 items of the post-questionnaire and was administered 4 weeks after the completion of the intervention phase. An additional item, controlling for a possible placebo effect, inquired whether participants attempted to find information about the strategy they applied (Appendix S [Eng.], Appendix T [Heb.]).

Procedures

Stage 1: Recruitment and Pre-Measures

Following approval from the Institutional Review Board of Fielding Graduate University, participants were recruited in a rolling enrollment. The main recruitment method was social media, mostly utilizing Facebook groups for parents of children with ASD to

recruit participants in Israel and the USA. To note, the USA group included participants from three other English-speaking countries, who responded to my invitation published in U.S.-based groups on social media. Additional methods of recruitment in Israel included advertisement by local (city) and national ASD organizations, ads posted near preschools for children with ASD (in Israel), and word of mouth ("Call for participation" advertisement: Appendix U [Eng.], Appendix V [Heb.]).

After they contacted me, I called each person to explain about the study and screen for eligibility to participate. People interested in participating who were found eligible, were sent a private link to the Qualtrics questionnaires via e-mail. The first questionnaire reestablished eligibility to participate in the study. Exclusion criteria included parents of children not formally diagnosed with ASD or with no children with ASD under the age of 12 years; parents with a current mental disorder or taking medications (these criteria were violated, as will be discussed); expectant mothers or parents with cancer (previously explained); and parents with no access to a phone, computer, Internet, and/or the Zoom platform (Inclusion/Exclusion questionnaire: Appendix E [Eng.] and Appendix F [Heb.]). Participants who were excluded received a message thanking them for their participation (Appendix W [Eng. and Heb.]). Otherwise, the participants were presented with the Informed Consent Form (ICF) for an explanation regarding the study and their rights. The ICF was obtained from each participant in line with the requirements of the Institutional Review Board (Appendix X [Eng.], Appendix Y [Heb.]). Additional questionnaires measuring stress, empathy, and BAP, followed. Participants were notified that they would learn and practice one of two protocols utilized in this study, and that post-study, they would be given an option to be trained in the method found to be most effective, if one was identified. A copy of the

ICF was e-mailed to the participants after completion of the pre-questionnaires.

Upon completion of the questionnaires, participants were randomly assigned to one of the two groups (TFT protocol or control-stimulation). The first 25 participants in Israel were assigned based on a random number generator file (Excel). At that point, after attrition, there were 10 participants in each condition. To achieve the goal of a minimum of 30 participants in each condition, I changed the random assignment procedure. One person unrelated to the study flipped a coin, determining the order of the next two condition assignments. A second person unrelated to the study assigned the terms “Orange” or “Banana,” representing the conditions, to “heads” or “tails.” These people were blind to the hypotheses. Recruitment continued until 30 participants completed the T2 questionnaires in each condition.

After completing the pre-questionnaires, participants were scheduled an individual training via Zoom. All but one participant was familiar with this application. That participant was trained via another method (Whatsapp), which also allows video communication. All materials that had the potential to identify participants were saved in encrypted “hidden folders” and were password protected.

Due to the recruitment method, the number of people exposed to this opportunity is unknown. Participant recruitment and attrition is described in Flowchart 1. One hundred seventy-nine people expressed initial interest to learn more about the study. Of these, 83 were excluded. Sixty-seven of them discontinued communication after an initial phone conversation, six stated they were not interested in participating, and nine were excluded due to lack of compliance with the study criteria (their child was older than 13 years or not formally diagnosed). Therefore, 96 pre-questionnaires were distributed. Twenty responses were not included in the analysis. Of these, two prospective participants did not complete the

questionnaires due to technological issues. Four prospective participants were excluded due to lack of compliance with eligibility criteria otherwise not identified in the initial phone conversation (a planned pregnancy, as well as age and diagnosis criteria). Fourteen prospective participants discontinued for other reasons. Hence, 76 participants completed the pre-questionnaires. Three participants, however, discontinued participation before they were trained in a stress reduction technique. Thus, 73 participants were distributed randomly among the two intervention conditions (T1). Thirty-seven participants were trained in the TFT intervention, and 36 participants were trained in the control-stimulation intervention. A total of 31 participants from the TFT group completed the intervention period (one unwillingly discontinued due to personal reasons after one week, however completed the post-questionnaires). Thirty-two participants from the control-stimulation group completed the intervention period (T2). Twenty-seven and 29 participants, in the TFT-intervention and control-stimulation groups respectively, completed the follow-up period (T3). Two participants from the control-stimulation group reported experiencing anxiety attacks and were asked to discontinue participation. One decided to continue her participation and did not report additional anxiety attacks.

Stage 2: Training and Intervention

All training sessions were scheduled for 30 minutes (although deviations occurred) and followed the same format: I thanked participants, introduced myself, and repeated the study goal as presented in the screening conversation: comparing two stress reduction protocols to see if one is more efficient than the other. I reminded them that at the end of the study, I would offer training in the protocol found most helpful, as relevant. Following, I showed participants the administration sheet and journal, and assured them that they would

have all the information available, including an illustration of the “stimulation points” and a video recording of the procedure. I explained the importance of bringing a thought that causes stress into awareness, gave examples, and waited for participants to bring a thought to mind. As needed, I helped participants focus on a concern to make it concrete. For example, if a participant was stressed “because of work,” I helped them focus on what exactly caused them stress, and why. I then taught the concept of subjective unit of distress (SUD), and the participant assigned an SUD to their concern. Following, I reviewed the stimulation points, assured that participants located the tapping points/area correctly, and in the case of the control-stimulation group, assured that they stimulated the area with an open palm (and not the fingertips). This instruction was given to avoid potential involvement of the meridian points on the tip of the fingers (Rogers & Sears, 2015). Then, the participants practiced the full protocol, and I demonstrated the motions while repeating the thought and the possible associated feelings, as they appear in the protocol. The participants were told they did not need to repeat the concern out loud but should hold it in their mind. At the end of the practice, I asked for a SUD and checked in with the participant about their feelings. We then reviewed the administration sheet and journal (via a shared screen) to assure that the participant understood the protocol as written and recognized the tapping/stimulation points. We went over the journal, and I explained the expectations. The participant had an opportunity to ask questions. To conclude, I described the next steps—individual practice for 2 weeks, three times daily, for up to 5 minutes per practice, or until the SUD is 0. Participants were told that after 14 days, I would follow up with questionnaires and compensate them for their time. I asked for, and received, verbal consent to send daily text messages reminding participants to practice and asking for practice information. I thanked them and requested the

participants not share the protocol with another participant, if they knew one or would know one.

The protocol for the *TFT protocol* intervention group was, “Side of hand (15-20 times), under nose (15-20 times), eyebrow, under eye, under arm, collarbone (think of the stressor), tiny finger, outer eye, collarbone (think of anger, rage), under nose, under the lower lip, index finger, collarbone (think of embarrassment, shame, guilt), gamut spot (50 times), collarbone (think of sadness)- 9 gamut- repeat from ‘eyebrow’ to last ‘collarbone’ (without side of hand, under nose and the 9-gamut). End with ‘floor to ceiling eye roll.’ The illustration of the tapping points included in the administration sheet and journal was from a free resource available on the thought field therapy website (http://tfttapping.com/free-stuff/). The tapping points were translated into Hebrew, and any indication allowing participants to identify the technique was removed (Appendix M [Eng.] and Appendix O [Heb.]).

Participants in the *control-stimulation* group followed the sequence: With an open hand (“the palm of your hands, no fingers touching”): “15 times stimulate on your cheeks, 15 times on inner elbow (think about the stressor), 15 times under chin, 15 times on inner elbow (think about anger, rage), 15 times on one forearm (between the elbow and the wrist), then 15 times on the other forearm, 15 times on inner elbow (think about embarrassment, shame or guilt), 15 times on one thigh (on the front part), then 15 times on the other thigh (on the front part), 15 times inner elbow (think about sadness). Sing a song (music with lyrics), Repeat the sequence twice. End with namaste.” The control-stimulation group received stimulation illustrations, which I created. The forearm stimulation illustration was based on Reynolds (2010; Appendix N [Eng.], Appendix P [Heb.]).

After the training, I also sent a text message asking, “At this point, how successful do

you think this treatment will be in reducing your stress?" requesting an answer of either: 1 = *not at all*, 3 = *somewhat successful*, 5 = *successful*. This was to establish expectancy as recommended by Baker et al. (2009). I also sent each participant their group's administration sheet and journal via e-mail.

A text message inquiring, "Have you practiced the stress reduction technique today?" was sent on the first day, around noon (depending on the participants' local time). From the second day onward, the daily message, sent around noon, read, "How many times did you practice the stress reduction technique yesterday (date)? Please reply 1, 2, 3 or 0." This served as a reminder to practice and a data collection measure.

Stage 3: Post-Measures and Compensation

At the end of the intervention period (2 weeks), participants were e-mailed a personal link to the post-questionnaires (T2) on Qualtrics, presented in the following order: PSS-10, PSI/SF-3e, IRI (Appendix G, A, I [Eng.] and H, B, J [Heb.]), and the post-questionnaire designed for this study (Appendix Q [Eng.], R [Heb.]). Participants were asked to complete the questionnaires within 3 days and were reminded that they would receive a compensation once the questionnaires were complete. They were reminded that they could discontinue participation at any time. Participants who completed the post-questionnaires were asked to continue applying the procedure for an additional 4 weeks, as needed (with no daily minimum requirement). They were asked for the preferred compensation method, and I re-sent them the administration sheet and journal. Participants who did not complete the questionnaires within 3 days were reminded to do so via text or e-mail. As compensation, participants received 100 NIS (Israel), $30 (USA), or the equivalent (other English-speaking countries) as an electronic gift card or via money transfer applications ("bit" in Israel, PayPal

in the USA), per their choice.

Stage 4: Follow-up and Compensation

Four weeks after the completion of the intervention period, I e-mailed participants a personal link to the follow-up questionnaires (T3) on Qualtrics, presented in the following order: PSS-10, PSI/SF-3e, IRI (Appendix G, A, I [Eng.] and Appendix H, B, J [Heb.]), and a brief follow-up questionnaire designed for this study (Appendix S [Eng.], Appendix T [Heb.]). Participants were asked to return them within 3 days. Reminders to complete the questionnaires were sent as needed. Upon completion of the T3 questionnaires, participants received an additional compensation (50 NIS, $10) in the method previously chosen.

Stage 5: Conclusion of the Study

Data collection was completed on January 15, 2021. Between December 28, 2020 and January 18, 2021, I reviewed each participant's scores on the PSS and PSI/SF-3e. I emailed each participant a personal letter indicating the range (high, moderate, low) at which their stress levels were. If indicated, I suggested reaching out for professional help and offered my support as needed. This letter was sent to all participants with information on the latest questionnaire they completed (T3, T2 or T1). Two participants (from Israel) asked for a follow-up meeting in which I helped them identify resources for support.

Once data analysis was complete and based on the results (presented in the next chapter), I changed the control-stimulation video to a "private" mode to prevent further access. Further to my commitment to participants, study results were sent to those who expressed an interest in receiving them, and participants in the control-stimulation group were invited to participate in a training to learn the TFT protocol.

Summary

I used the quantitative method of inquiry to answer the research questions. Sixty-three participants, P-ASD, were recruited in a rolling enrollment and assigned to two groups. Participants were trained via Zoom. The first group applied a TFT protocol designed for stress, while the second group practiced a control-stimulation sequence, engaging non-acupoints (or acupoints not related to stress reduction according to TFT). Participants were provided with an administration sheet and video recording of the procedure to support their training. They were also provided with a journal, to document their practice. The participants' general stress (measured by the PSS), parenting-related stress (measured by the PSI/SF-3e), and empathy levels (measured by the IRI), were measured three times. Responses to those questionnaires were recorded at baseline (pre-intervention), post-intervention (after 2 weeks), and at follow-up (after 4 additional weeks). Additionally, I measured BAP characteristics in the group of P-ASD.

CHAPTER FOUR

RESULTS

I describe the data preparation process, and the data analyses. The latter includes testing assumptions, comparison across individual variables and covariates, the procedures I followed for analyses testing, the characteristics of the sample, and measures attesting to the fidelity of the study. The reliability of the instruments used, and finally the results of the hypotheses testing, are presented. Participants' subjective experience and exploratory analyses are also reported.

Data Preparation

The data for all participants in the three measuring times were integrated into one file. After reviewing the demographic information, missing or erroneous data were handled in the following way: At T1, "NA" replaced missing data for one person who indicated having more children with developmental challenges than their total number of children; two people indicating having the same number of children "with a psychological diagnosis *excluding* the child with ASD," as "total number of children"; one person indicated being "married and divorced." For 11 participants with only one child, the "age of youngest child" was marked as NA. Personal status was updated to "divorced" for two participants who marked being "single" *and* "divorced." Datum for one participant was updated as "single" after choosing "single" *and* "not in a committed relationship." Additionally, one participant received their own diagnosis of ASD at T3. This was updated for the analysis of the demographic information at T1.

Responses to formal measures (PSS, PSI/SF-3e, IRI, BAPQ) were coded and summarized according to the specific measure guidelines. The following data corrections

were made: On the IRI questionnaire, Question 3 (Q. 3) was initially repeated twice, and Q. 2 was missing. This was corrected after 16 participants responded at T1, and one participant responded at T2. The missing score for Q.2 was replaced by each individual's mean score on the IRI-EC scale, to which Q. 2 belongs. On the PSI questionnaire, missing data for Q. 33 were replaced by the average of the PSI-DC scale, for four participants at T1, and one participant at T2 and T3. On the BAPQ questionnaire (completed at T1 only), missing datum for Q. 26 was replaced by the average of the Rigid subscale for one participant. Missing datum for Q. 36 was replaced by the average of the Aloof subscale for one participant.

At T2, one participant did not complete datum for "number of days practiced." This participant responded on most days to the daily texts asking about "yesterday's practice." I therefore used that information (days on which one or more practices were reported) as the measure for "number of days practiced."

Prior to analysis of the PSI/SF-3e questionnaire, I calculated "Defensive Responding" scores for all participants. One participant had a score of 9, indicating a "defensive response." This low stress score has three possible interpretations. Either the parent is stressed but trying to portray being competent, the parent is disconnected from their parenting role and hence experiencing low stress, or the parent is indeed extremely competent. Interpretation of defensive scores should be done based on additional data (Abidin, 1995). This participant's response was non-defensive at T2 or T3, and therefore their data from T1 were included. All other participants were non-defensive (all scores >10) indicating authentic responses, at all measuring times, and all data were included.

I established the BAP status (Above-Cutoff or Below-Cutoff) of the participants at T1. The BAP status was determined using the cutoff scores presented by Sasson, Lam, et al.

(2013) for males and females separately. Participants scoring Above-Cutoff presented BAP characteristics (BAP-AC), and those who scored Below-Cutoff did not (BAP-BC).

Calculated Variables

To address hypotheses 1-4, I created two new variables. MH diagnosis included two participants with ASD and participants who indicated having another current mental health (MH) diagnosis. This variable was included to control for the difference in the number of participants with a MH diagnosis between the groups (described in the demographic section).

The variable Total Practice (separate for T2 and T3) was a multiplication of the number of days practiced and the number of daily practices during the 2-week intervention period, and the 4-week follow-up period, as reported by participants in the post-intervention (T2) and follow-up (T3) questionnaires, respectively.

For analyses of hypotheses 2(b) and 4(b), I created a Difference Score variable, subtracting scores at T2 from scores at T3, separately for each stress measure (PSS, PSI and subscales) and for the IRI-PT.

To compare the scores on the cognitive measures of the IRI (IRI-Perspective Taking and IRI-Fantasy Scale) to the scores on the emotional measures of the IRI (IRI-Empathic Concern and IRI-Personal Distress) for participants BAP-Above the Cutoff score only (Hypothesis 6), I created new variables. Cognitive IRI was computed by adding the scores on the IRI-PT and IRI-FS scales, and Emotional IRI was computed by adding the scores on the IRI-EC and IRI-PD scales.

Data Analyses

Statistical power analysis was calculated using the G*Power software, version 3.1.9.2 (Faul et al., 2009). Statistical analysis was done with the R software, version 4.0.4 (R Core

Team, 2021). Prior to analyzing the data to answer the hypotheses, I explored demographic information and responses to other unstandardized questions reported at baseline. I explored the data once by nationality (Israel – USA-group) and once by condition (TFT and control-stimulation groups) to identify variables that might impact outcomes and understanding of the results. Only the data of the 63 participants who completed the intervention phase (T2) were included in this analysis. The current sample size had above 90% power (Peterson & Foley, 2021) to detect a large effect $f^2 = .4$ (Wuensch, 2019) for the main analyses (hypotheses 1-4).

Testing Assumptions

I confirmed that responses to formal measures (PSS, PSI, IRI, BAPQ) at T1 (63 participants) conformed to the assumptions of linearity, normal distribution, and homogeneity of variances by plotting the data and conducting Shapiro-Wilk and Levene tests. Scores for PSS and IRI-PT did not have normal distribution and were corrected by squaring them. PSI-PCDI scores were corrected by log transformation. Scores on the IRI-EC also did not have normal distribution and attempts to correct them (by squaring the data, extracting the square root or a log transformation) failed. Therefore, a non-parametric analysis was initiated for this variable.

Total Practice did not have normal distribution at T2 or T3. Correction attempts by squaring the data, extracting the square root, or performing a log transformation failed. Non-parametric analyses were performed for this variable.

Responses to the BAPQ were collected at T1 only. Analyses were performed using this data from participants who completed T1 and T2 (61 participants) and T3 (54 participants). I confirmed that the data for the different size samples conformed to the

assumptions of linearity, normal distribution, and homogeneity of variances by plotting the data and conducting Shapiro-Wilk and Levene tests. To note, these smaller samples, which were used to answer hypotheses 5 and 6, excluded two participants with ASD (T1 and T2) and accounted for attrition (T3). The distribution of scores for the IRI-Perspective Taking (T1, T2, T3) and IRI-Empathic Concern (T3) was not normal. The scores of the PSI-Difficult Child (T3) did not have homogeneity of variances. These variables were corrected by squaring the scores prior to analyses. Attempts to correct the distribution of scores for the IRI-EC (T2) and IRI-Fantasy Scale (T3) by squaring them, extracting the square root or log transformation, failed.

Comparisons Across Independent Variables and Covariates

I compared scores on the stress measures (PSS and PSI), perspective taking (IRI-PT), and BAPQ pre-intervention (T1) by group, using independent *t*-tests or a Wilcoxon rank-sum test, as appropriate. No differences emerged between the groups on any of the measures (Table 1).

Sixty-three participants completed the 2-week intervention period. The means and SD of the group scores for the PSS, the PSI and its subscales, and the IRI-PT by Time (T1 and T2) are presented in Table 2. Fifty-six participants completed the 4-week follow-up period. The means and SD of the group scores for the PSS, the PSI and its subscales and IRI-PT, by Time (T2 and T3) are presented in Table 3.

To test whether there were pre-treatment differences in MH diagnosis, I compared the occurrence of a current MH diagnosis between groups and across timepoints. There was no significant difference between participants in the TFT group (n = 6) and the control group (n = 11), $X^2(1,63) = 1.12$, $p = 0.29$ at T2 (includes same participants as in T1). There was also

no significant difference between participants in the TFT group (n = 5) and the control group (n = 11, $X^2(1,57) = 1.71$, $p = 0.19$ at T3. No significant difference was found during T2 or T3 for Total Practice when comparing the two intervention groups (Table 4).

Similar tests were performed for BAP: The distribution of 61 participants by their BAP status (Above Cutoff or Below the Cutoff score; excluding two participants with self-reported ASD) did not differ by condition, in any of the times (Table 5). The distribution of participants by BAP status at T1 for all 63 participants (including the two participants with ASD) did not differ by condition, $X^2(1, N = 63) = 0.045$, $p = .83$.

Hypotheses Testing

Multiple Regression (Hypotheses 1-4)

Prior to analyses, I centered the scores of the PSI measure. Base models (model 1, described for each hypothesis) were tested to determine if they met the assumptions of normality of residuals, linearity, and homogeneity. In cases of minor violations of linearity, a robust multiple regression was conducted using the "robustbase" package of R (R Core Team, 2021). The results generated by this package do not include information for the omnibus F.

Mediation Analysis

A mediation analysis was indicated. I used the "robmed" package for a robust mediation analysis (R Core Team, 2021).

Characteristics of the Sample

Comparing Samples by Nationality

As indicated in Table 6 (Sociodemographic Categorical Characteristics of Participants at Baseline [T1]), participants in the USA group came from 12 states, and 9 of

33 participants came from the same state. Four additional participants came from three other English-speaking countries. Most of the participants in this group were Christian, identified as religious (82%), and were English speakers. All the Israeli participants were Jewish Hebrew speakers, and 77% identified as secular.

In both groups most of the participants were married or in a committed relationship, although a higher percentage of the participants from the Israeli group (86%) were in these types of relationships compared to participants in the USA group (68%). Eighty-nine percent of the Israelis had 15 or more years of education, compared to 65% of participants in the USA group. Although half of the participants in both groups held a full-time job, more members of the Israeli group either held a part-time job (26% vs. 7%) or were seeking employment (11% vs. 3%). More members of the USA group, compared to the Israeli group, were homemakers (18% vs. 3%) or held another status (21% vs. 9%).

All participants self-reported their health as being “good” or “excellent,” besides two participants from the USA-group who identified their health as “poor.” As for their sources of support, about 70% of participants from each group received help for basic needs, most of them from municipal or governmental agencies. Sixty-nine percent of parents in the Israeli group and 61% of parents in the USA group were happy with their social support system. Participants in both groups were the biological parent of a child with ASD, excluding 4 non-biological parents in the USA-group. As indicated in Table 7 (Categorical Characteristics of the Child with ASD at Baseline [T1]), all but one parent (from the USA group) lived with the child with ASD, and all but one parent (from the Israeli group) were the sole or joint caretaker of this child.

Approximately 86% of parents in both groups had one child with ASD (27 parents in the TFT group and 28 parents in the control-stimulation group), and a similar number of parents had two or three children with ASD (a total of four parents in the TFT group and three in the control-stimulation group). One participant from Israel had four children with ASD (Table 6). As found in Table 8 (Sociodemographic Continuous Characteristics of Participants at Baseline [T1]), the number of children in the family, the age of the oldest child in the family, the age of the youngest child, and the age of the child with ASD did not differ. The age of the child with ASD when diagnosed also did not differ, although only limited data for the Israeli group exist due to a collection error.

Differences emerged in the following areas, found in Table 6: The groups differed in gender composition, with all seven males coming from the Israeli group. Differences also emerged in mental health status: Two participants from the USA group had an ASD diagnosis. None of the participants from the Israeli group had this diagnosis. And, although parents from both groups had a similar percentage of past mental health diagnosis (74% and 79%), current mental health diagnosis was higher for the parents in the USA group. Fifteen participants had a current diagnosis (54%) other than ASD, compared to one person (7%) from the Israeli group. This individual was treated for the mental health condition, compared to only nine participants (60%) from the USA group. The inclusion of participants with a current mental health diagnosis (other than ASD) was due to a collection error halfway through the study. This resulted in an imbalance between the groups, which I controlled for in the analyses. As indicated in Table 8, the parents in the Israeli group were significantly older than the parents in the USA group, by approximately 3 years.

Regarding medication use, 68% of the Israelis did not take any medication, compared to 47% of participants in the USA group. However, three people (9%) in the Israeli group indicated taking medication for a mental health issue, while only one person, as mentioned, indicated having a mental health diagnosis. Ten participants in the USA group (35%) took medication for a mental health condition. Sixty-eight percent of people in the Israeli group (22 participants) were supported by parent education, provided mostly by professionals. Only 18% (5 participants) from the USA group indicated being supported by parent education, and none pointed to professionals as their source of support (Table 6).

Twenty percent of Israelis (n = 7) had one additional child to the child with ASD, who had other developmental, medical, emotional, physiological, educational, or mental health differences. Thirty-eight percent (n = 10) of members of the USA groups had one or more children with such a diagnosis (Table 6).

When comparing characteristics related to the child with ASD (Table 7), the following similarities and differences emerged: In both groups, most children were males, and the number of females in each group was similar (9 in the Israeli group, 10 in the USA group). However, 37% of the children in the Israeli group, compared to 64% of children in the USA group, had at least one additional diagnosis.

Children in the Israeli group were first or second born almost equally (16 and 14 families, respectively). Most of the children in the USA group were first born (16 families), followed by third born (7 families). At the time parents completed the baseline (pre) questionnaire, 16 (57%) of the children in the USA group were home due to COVID-19, compared to only four students (11%) from the Israeli group. Typically (during a non-COVID routine), most of the Israeli students go to special education schools (34%), followed

by a regular classroom and a special classroom (within a regular school), equally (23% each). Most of the children in the USA group either go to regular classrooms (9 students, 32%) or are homeschooled (7 students, 25%).

In both groups, parents indicated “high” or “very high” satisfaction from their relationship with their child (77% in the Israeli group, 61% in the USA group), although three parents in each group had “low” or “very low” satisfaction from this relationship. The rest were neutral.

The severity of the child’s ASD symptoms was perceived as “severe” or “very severe” by 46% of the parents in the Israeli group, compared to 25% of parents in the USA group. Thirty-seven percent of Israeli parents were neutral regarding the severity of the symptoms compared to 61% of participants in the USA group, and the rest felt their child was “easy to be with,” or that the symptoms were “not severe.” Additional information unique to only one of the nationalities, such as area of residence (Israel), ethnicity (USA group), and income (Israel and USA group), is included in Table 6.

Comparing Samples by Condition

As shown in Table 6, random assignment to intervention conditions created intervention groups that were similar on the following variables: the distribution of nationalities; the distribution of the nine participants originating from the same U.S. State; home languages; religion and religiosity, although the two participants who had an “other” religion or declined answering were in the TFT group. However, there is no reason to believe this might have impacted findings. Additional similarities between groups were in the parents’ personal status and relationship to the child; years of education; past mental health diagnosis; medication use; percentage of parents receiving help for basic needs and the

providers of the support; and in most families in both groups, there was only one child with ASD. Regarding child characteristics (Table 7), parents with children with ASD and an additional diagnosis were distributed evenly between the groups. As found in Table 8, no difference existed between the groups on parents' age, the number of children in the family, the age of the oldest child in the family, the age of the youngest child, the age of the child with ASD, and the age of that child when diagnosed.

Differences between the groups on parental characteristics (Table 6) appeared in the distribution of parents by gender. Of the seven males, only one was randomly assigned to the control-stimulation group. Additionally, more parents from the TFT group held a full-time job (65% vs. 37%), while more parents in the control-stimulation group held part-time jobs (22% vs. 13%), were homemakers (16% vs. 3%), or were seeking employment (12.5% vs. 3%).

The two parents who indicated poor health were in the TFT group. The two parents who also had an ASD diagnosis were randomly assigned to the control-stimulation group (one of these participants received the diagnosis only during the follow-up period). There were also more parents in the control-stimulation group with a current mental health diagnosis (31%, $n = 10$) compared to parents in the TFT group (19%, $n = 6$), and more diagnosed parents in the control-stimulation group received treatment for their condition. More parents in the TFT group received parent education (48% vs. 37.5% in the control-stimulation group), with a high proportion of respondents receiving parent education from a municipal or governmental agency. More participants in the control-stimulation group were satisfied with their social support system (72% vs. 58%). There were more families in the TFT group with additional children with a diagnosis, other than ASD.

Exploring child characteristics (Table 7) revealed that while in each group most parents parented males, most of the females with ASD were in the control-stimulation group (13 girls) compared to the TFT group (six girls). For most parents in the control-stimulation group, the child with ASD was firstborn (59%), while it was the second child of most of the parents in the TFT group (39%). The parent whose child did not reside with him or her was in the TFT group, as was the (different) parent whose child was cared for by a non-family member. While the number of children that were home due to COVID-19 was similar (n = 9, 29% in the TFT group and n = 11, 34% in the control-stimulation group), during routine, most of the children in the TFT group go to a typical school or a special school. Children in the control-stimulation group went before the pandemic to a typical school—into a regular classroom or a special class in that school. More parents in the TFT group expressed satisfaction (74%) or dissatisfaction (13%) with their relationship with their child compared to parents in the control-stimulation group (66% and 6%, respectively). While the severity of the child's symptoms was perceived by approximately 35% of parents in each group to be "severe" or "very severe," more parents in the TFT group perceived their child's symptoms as neutral (55%), compared to parents in the control group. More parents in the control group perceived their child's symptoms as **"**easy**"** or **"**very easy**"** (22%). The distribution of variables between intervention conditions that were affected by nationality appear in Table 8. This includes areas of residence (Israel), ethnicity (USA group), and income (Israel and USA group).

Fidelity of the Study

Administration and Application

I compared the groups on variables related to the administration and application of the protocols to measure any systematic differences that might exist. Pre-intervention, I measured the length of the training, and immediately after the training I measured participants' expectation regarding how successful the intervention would be. The findings are presented in Table 9. Although there was no difference in the average length of the training sessions (in minutes) when comparing the groups based on nationality, there was a difference when comparing by intervention type. Participants in the TFT-intervention group (N = 31, M = 34.03, SD = 7.08) received a significantly longer training session compared to participants in the control-stimulation group (N = 32, M = 28.25, SD = 4.46; W = 242.5, $p <$ .001). This difference held even when removing extreme data (longer sessions due to multiple questions asked by participants).

Participants were similar in their expectation (pre-intervention) for how successful the intervention would be when comparing by intervention groups. However, participants from the USA group had a significantly higher expectation that the intervention would be successful, compared to participants from Israel (Table 9). Participants did not differ in their subjective report of how helpful their protocol was, post-intervention and at follow-up (Table 11).

Participants' ability to follow the protocol correctly and access to supporting resources (videos of the protocols) was measured post intervention (T2) and at follow-up (T3). Post the intervention period, most of the participants believed they followed their protocol correctly (Table 10). However, four participants in the TFT group and six from the

control group were unsure. One participant from the control group indicated they did not follow the protocol correctly. At follow-up, six participants from the TFT group and three from the control group were unsure if they followed the protocol correctly.

Based on the post and follow-up questionnaires, there was no difference in the number of times participants accessed the videos to support their practice (Table 11).

The number of views of the protocol videos during the full duration of the study (6 weeks), as documented on the YouTube channel, indicated that the control-stimulation protocol was viewed a total of 46 times (14 times by participants from the USA, and 32 times by participants in Israel). The TFT protocol was viewed 503 times (121 times by participants in the USA and 382 times by participants in Israel).

Familiarity with "Tapping"

Four participants from the TFT group identified the intervention as "tapping" or "EFT" during the training, but none had practiced it before. One discontinued participation after the training. At follow-up participants were asked if they searched for information about their protocol. Only one participant responded positively. The participant, from the control-stimulation group, mentioned "it can be used with a mantra." Thus, participants were not familiar with tapping.

Dependency Between Observations

At baseline, one participant (from the TFT group) did not know if they were the only person from their household who participated in the study. All other participants (30 in the TFT group, 32 in the control-stimulation group) indicated they were the sole participants from their household. During the training, however, 61 participants confirmed they did not know anyone else who participated in the study (family or non-family members). Two

participants knew each other, since one was referred to the study by the other. They were not related, they were randomly assigned to different conditions, and one discontinued participation shortly after the training. Post intervention, two participants from the TFT group indicated they shared their protocol with their spouses. At follow-up, one participant indicated they shared their protocol with another participant. To note, this response might have been accidental (intending to mark that the protocol was shared with a non-participant) since all participants indicated they did not know other participants. Based on all the above, I assumed no dependency between participants.

Reliability of Measures

The reliability of the PSS, PSI/SF-3e, IRI, and BAPQ was calculated. Responses to items on the PSS and IRI scales were reversed as required, prior to calculating reliabilities. The analysis was performed on the combined data for all participants, regardless of their nationality or intervention assignment. Reliability of the PSS, PSI/SF-3e, and IRI was calculated using data from 63 participants at T1 and T2, and 56 participants at T3 (due to attrition). Table 12 presents the internal consistencies of the PSS, PSI/SF-3e, and IRI at the different measuring times. The internal consistency of the PSS (10 items) was found to have high reliability in all three measuring times (T1-T3), as was the internal consistency of the PSI/SF-3e questionnaire for the Total scale (36 items) and the subscales (12 items each). Previous studies suggested a better fit of the PSI for P-ASD after removing and/or reordering the items in the subscales. I therefore calculated reliability for the PSI scales at T1, T2, and T3 using a 30-item composition as suggested by Dardas and Ahmad (2014). The original PD subscale is unchanged (Dardas & Ahmad, 2014). Reliabilities were high, although not superior to the original scale composition, besides the reliability of the PCDI scale at T2 (α =

.89). Zaidman-Zait et al. (2010) found that items in the PCDI and DC scales did not discriminate well between parents based on their stress levels and suggested either omitting those items or using them with caution. The P-ASD that participated in their study had children up to age 6 years old. The average age of the children with ASD was higher in this study. Based on all the above, I decided to analyze the data using the original composition of the PSI/SF-3e subscales.

The internal consistency of the IRI scales (7 items in each scale) was high for the Personal Distress Scale and for the Fantasy Scale at all measuring times. The internal consistency was acceptable for the Empathic Concern Scale at T1 and T3, and high at T2. The internal consistency of the Perspective Taking Scale was high at T2 and T3, and acceptable at T1.

Reliability of the BAPQ, collected only at pre-intervention, was calculated for T1. Of the 63 participants at T1, two self-reported having an ASD diagnosis. The BAPQ is intended for undiagnosed individuals. Therefore, reliability was calculated for 61 participants. The internal consistency of the Full scale of the BAPQ and the subscales was high (Table 13).

Results of the Hypotheses Testing

Hypothesis 1: The Effects of the Intervention Condition on Stress at T2

To explore the effect of the intervention on stress scores at T2, for each stress measure (PSS, PSI Total and subscales), I first predicted scores at T2 from scores at T1 and the intervention condition (model 1). I then compared successive models by adding predictors in the following order: nationality (model 2), “MH diagnosis” (model 3), and

"Total Practice" (model 4). Finally, I checked the interaction between the existence of a current MH diagnosis, and condition (model 5).

Analyses revealed an effect of general stress scores (PSS) at T1 on general stress scores (PSS) at T2 (B = 0.63, SE = 0.11, $p < .001$), and a significant positive effect of membership in the TFT group on Perceived Stress Scales (PSS) scores at T2, was identified (B = -2.98, SE = 1.21, p = .017), with no additional effect of nationality, MH diagnosis or Total Practice ($p > .50$). Model 1 explained 39.4% of the variability. The effect of the TFT condition predicted a 2.98-point decrease in general stress (PSS) scores at T2, compared to participation in the control-stimulation condition (Table 14). This result supports the hypothesis that participants in the TFT group would experience a stress reduction, compared to participants in the control-stimulation condition, when controlling for general stress (PSS) scores at T1 (post-intervention). No other main effects, or an interaction effect were identified.

Analyses to predict parenting-related stress scores measured by the PSI and its subscales at T2 revealed an effect of scores on the PSI and each subscale at T1, on scores at T2. However, no other main effects or interactions were identified for PSI-Total scores on the PSI-Total and subscales at T2 (Table 15), PSI-Parent Child Dysfunctional Interaction (Table 16), PSI-Difficult Child (Table 17), or the PSI-Parental Distress (Table 18). Thus, parenting-related stress did not appear to be affected by treatment.

To conclude, the hypothesis was supported for the general stress measure (PSS). Participants in the TFT group experienced a significant reduction in their general stress levels compared to participants in the control-stimulation group, after the 2-week intervention

period, when controlling for general stress scores (PSS) at T1. The hypothesis was not supported for parenting-related stressors (measured by the PSI-Total and subscales).

Hypothesis 2(a): The Effects of the Intervention Condition on Stress at T3-Group Comparison

To explore the effect of the intervention on stress scores at T3, I followed a similar process as described for Hypothesis 1. During the follow-up period participants practiced by will and need. To control for this possible source of variability, I added a model with the interaction between "Total Practice" and condition (model 6). Scores on the general stress measure (PSS) at T3 were significantly predicted only by PSS scores at T2. I did not find any main effects or interaction effects for PSS scores at T3, when predicted by condition, nationality, the existence of a current mental health diagnosis, and total practice during the follow-up period (Table 19). The results were similar for two of the parenting-related stress scales, the PSI Total scale (Table 20), and the PSI-Personal Distress scale (Table 21). These findings did not support the hypothesis. Participants in the TFT condition did not show at follow-up an improvement in general stress scores (PSS), or in parenting-related stress, as measured by the PSI (Total scale, PSI-Personal Distress and PSI-Difficult Child subscales), compared to participants in the control-stimulation condition.

However, a main effect for condition emerged for PSI-Parent Child Dysfunctional Interaction (PCDI) scores at T3, $B = 2.76$, $SE = 1.33$, $t(53) = 2.06$, $p = .044$, when controlling for scores on the PSI-PCDI at T2. No additional effect of nationality ($p > .35$), current MH diagnosis ($p > .2$), or Total Practice ($p > .6$) was identified. The Base model (#1) explained 58.6% of the variability, $F(2,53) = 39.96$ (Table 22). These results are contrary to the hypothesis**,** as stress scores on the PSI-PCDI *increased* for participants in the TFT group,

compared to scores for participants in the control-stimulation group. No significant interactions appeared.

A main effect for current MH diagnosis appeared when predicting scores on the PSI-Difficult Child (DC) subscale at T3 (Table 23). Participants with *no* current MH diagnosis scored lower on the PSI-DC at T3, B = -4.39, SE = 1.39, $t(50)$ = -3.14, p = .002, indicating lower stress levels, regardless of the intervention group. This model (model 4) explained 83.3% of the variance, $F(5, 50) = 55.97$, $p < .001$. There were no significant interactions. These results were not anticipated by the hypothesis.

To conclude, the hypothesis was not supported, as there was no difference between the groups indicating a decrease in stress scores for participants in the TFT group at T3. The number of times participants practiced during the follow-up period also did not contribute to a group difference. Contrary to the hypothesis, parents in the TFT group experienced significantly higher parenting-related stress in the parent-child dysfunctional interaction domain (PSI-PCDI), compared to parents in the control-stimulation group. Additionally, parents with no current MH diagnosis, regardless of their intervention condition, experienced significantly less parental stress related to how difficult they experience their child to be (PSI-DC).

Hypothesis 2(b): The Effects of the Intervention Condition on Stress at T3-Comparison Within the TFT Group

Only weak correlations were found between the Total Practice of parents in the TFT condition and all "Difference score" measures of stress (Table 24). The hypothesis was not supported. Total practice did not impact results in the TFT condition.

Hypothesis 3: The Effects of the Intervention Condition on Perspective Taking at T2

To explore the effect of the intervention on perspective taking scores at T2, I first predicted IRI-Perspective Taking (PT) scores at T2 from IRI-PT scores at T1 and the intervention condition (model 1). I then compared successive models by adding predictors as described for Hypothesis 1. IRI-PT scores at T1 predicted IRI-PT scores at T2 ($B = 0.93$, $SE = 0.08$, $p < .001$). Additionally, a significant condition effect emerged ($B = 2.10$, $SE = 0.83$, $p = .014$). Model 1 explained 68.6% of the variance.

The results support the hypothesis – The effect of the TFT condition predicted a 2.1-point increase in perspective taking scores, compared to participation in the control-stimulation condition, when controlling for scores on the IRI-PT at T1. There were no other significant main or interaction effects (Table 25).

Mediation Analysis. An effect of TFT on a decrease in general stress scores (Hypothesis 1) and an effect of TFT on an increase in perspective taking scores (Hypothesis 3) was found. Therefore, I conducted a mediation analysis with general stress scores (as measured by the PSS at T2) as a mediator of the effect of TFT on IRI-PT scores at T2. I held PSS scores at T1, IRI-PT scores at T1, and "Total Practice" as covariates.

The results revealed a Total effect of TFT on IRI-Perspective Taking scores at T2 ($p < .001$), and a direct effect of TFT on IRI-Perspective Taking scores at T2 ($p < .001$). The indirect effect of TFT on scores on the IRI-PT at T2, with PSS scores at T2 as a mediator, was significant at $p < .05$, CI [0.01, 1.36]. Therefore, general stress partially mediated the relationship between the TFT intervention and perspective taking.

Hypothesis 4(a): The Effects of the Intervention Condition on Perspective Taking at T3-Group Comparison

To explore the effect of the intervention on IRI-Perspective Taking scores at T3, I followed a similar process to the one described for Hypothesis 3. To control for possible variability due to practice by will and need, I checked for an interaction between "Total Practice" and condition (Model 6). IRI-PT scores at T2 predicted IRI-PT scores at T3 ($p <$ .001). No other significant main effects or interaction effects emerged for scores on the IRI-PT at T3 (Table 26). The hypothesis was not supported. Participants in the TFT condition did not have higher perspective taking scores at T3, compared to participants in the control-stimulation condition.

Hypothesis 4(b): The Effects of the Intervention Condition on Perspective Taking, at T3-Comparison Within the TFT Group

A weak correlation between the T2-T3 Difference score for IRI-Perspective Taking, and "Total Practice" was found for parents in the TFT condition ($n = 27$, Kendall *tau* = .05, $p = .82$). The hypothesis was not supported. The number of total practices did not impact the results of participants in the TFT group.

Broad Autism Phenotype

Between 20-25% of the participants presented BAP characteristics above the cutoff scores, in each of the BAP categories (Aloof, Pragmatic Language, Rigid, and the Full scale; Table 27).

Hypothesis 5: Comparing Stress and Empathy Scores by BAP Status

To compare participants with BAP-Above the Cutoff score (BAP-AC) to those with BAP-Below the Cutoff score (BAP-BC) on each of the stress and empathy measures for each of the measuring times (T1, T2, T3), I conducted a one-way ANOVA analyses or the

Kruskal-Wallis one-way ANOVA, as indicated. Follow-up ANCOVAs were performed as needed.

Stress Scores. At T1 parents with BAP-AC experienced significantly higher general stress (measured by the PSS; $p = .009$), and higher parenting-related stress (measured by the PSI/SF-3e, Total score and subscales; all $p < .045$), compared to parents with BAP-BC (Table 28). Post-intervention (T2) and at follow-up (T3), parents with BAP-AC experienced significantly higher parenting-related stress compared to BAP-BC, as measured by the PSI-Total score and two of the subscales: Parent-Child Dysfunctional Interaction (PCDI) and Personal Distress (PD; all $p < .031$; Table 29 [T2] and Table 30 [T3]). These findings support the hypothesis.

However, the hypothesis was not supported by the following findings: Parents with BAP-Above the Cutoff score and parents with BAP-Below the Cutoff score did not differ significantly on general stress scores (PSS) and parenting stress related to experiencing their child as being difficult (PSI-DC) post-intervention (all $p > .19$) and at follow-up (all $p > .21$).

A follow-up ANCOVA was performed to evaluate the main and interactive effects of the intervention condition and the BAP status while using stress scores at T1 (using the PSS and PSI-DC scores separately) as a covariate, on PSS and PSI-DC scores at T2. A second follow-up ANCOVA examined the main and interactive effects of the intervention condition and the BAP status on PSS and PSI-DC scores at T3, with stress scores at T2 as a covariate.

For both the general stress measure (PSS) and PSI-Difficult Child subscale, scores at T1 significantly predicted scores at T2 (all $p < .001$), but the interaction between BAP status and the intervention condition was not significant (all $p > .49$). For both measures (PSS and PSI-DC) at T3, scores at T2 significantly predicted scores at T3 (all $p < .001$), but the

interaction between BAP status and the intervention was not significant (all $p > .74$; Table 31). Thus, parents responded similarly to the intervention as measured by these stress measures, regardless of their BAP status.

To conclude, parents with BAP-Above the Cutoff score had significantly higher general and parenting-related stress scores at T1. Significant differences were maintained at T2 and T3 for parenting-related stress (PSI-Total, PCDI, and PD scales). The significant differences disappeared at T2 and T3 for general stress (PSS) and parental stress related to experiencing the child as difficult (PSI-DC). Participants BAP-Above the Cutoff score and BAP-Below the Cutoff score did not differ on their general stress (PSS) and PSI-Difficult Child scores at T2 and T3, and this could not be explained by an interaction between BAP status and the intervention condition.

Empathy Scores. I hypothesized that parents with BAP-AC scores will have lower "other-oriented" empathy scores compared to parents with BAP-BC scores, measured by the IRI-Perspective Taking (PT) and IRI-Empathic Concern (EC) scales, at all measuring times. This was partially supported.

For the IRI-PT scale, a difference between participants by their BAP status was marginally significant at T1 ($p = .085$; Table 28). At T2, the difference became significant. Although mean perspective taking scores improved for both groups, participants with BAP-Below the Cutoff score had significantly higher perspective taking scores compared to participants with BAP-Above the Cutoff score ($p = .031$; Table 29). At T3, a significant difference between the IRI-PT scores of parents with BAP-AC and those with BAP-BC was sustained. Mean scores decreased for participants in both groups. Participants with BAP-BC still had higher scores, indicating better perspective taking compared to parents with BAP-

AC (p = .008; Table 30). A follow-up ANCOVA was performed to evaluate the main and interactive effects of the intervention condition and the BAP status, using IRI-PT scores at T1 as a covariate, on IRI-PT scores at T2. A second follow-up ANCOVA examined the main and interactive effects of the intervention condition and the BAP status on IRI-PT scores at T3, with IRI-PT scores at T2 as a covariate. IRI-PT scores at T1 significantly predicted scores at T2, and IRI-PT scores at T2 significantly predicted IRI-PT scores at T3 (all $p <$ .001), but the interaction between BAP status and the intervention condition was not significant ($p > .17$; Table 32). Thus, parents with BAP-Above the Cutoff score and parents with BAP-Below the Cutoff score responded similarly to the intervention as measured by the IRI-Perspective Taking scale.

No significant difference appeared between the average scores of people identified as having BAP-AC compared to BAP-BC, on the Empathic Concern (IRI-EC) scale at all measuring times (all $p > .11$; Tables 28, 29, 30).

At all measuring times, there was no difference between the average scores of people identified with BAP-AC compared to BAP-BC on the "self-oriented" empathy scales: Fantasy Scale (FS) and Personal Distress (PD). This finding supports the hypothesis that participants would not differ on measures of self-oriented empathy based on their BAP status (Tables 28, 29, 30).

To conclude, supporting the hypothesis, participants with BAP-AC differed from participants with BAP-BC on scores on the IRI-PT, one of the two other-oriented empathy measures. Although marginally significant at T1, the differences became significant at T2 and T3. Parents with BAP-BC had significantly higher perspective taking scores than parents with BAP-AC. This could not be explained by the interaction between BAP status and

intervention. In accordance with the hypothesis, participants with BAP-AC and participants with BAP-BC did not have significantly different scores on measures of self-oriented empathy.

Hypothesis 6: Comparing P-ASD with BAP-AC, on Cognitive and Affective Empathy

For each measuring time (T1, T2, T3) I calculated the difference between the "Cognitive IRI" and "Emotional IRI" measures and compared the difference scores using a Wilcoxon rank test analysis. The hypothesis was not supported. No differences emerged between scores on the cognitive and emotional scales of the IRI, for BAP-AC, in any of the times measured (Table 33).

Participants' Subjective Experience

At follow-up, participants had an option to share their experience. Fifteen participants from the TFT group responded. Six indicated the protocol was helpful, mentioning improved overall performance, improved sleep, and improved ability to handle personal issues, and that tapping became natural. Six others pointed to challenges, indicating it was "too long and hard to remember" (1), "not for people with ADHD" (1); that they had "no time to do it, and did only part of the protocol" (1); "didn't believe in it" (1); or that the protocol "didn't work for me, initially increased stress with no additional relaxation at the end" (1). One participant was "hospitalized and forgot about it" (1). One participant attributed mood improvements to anti-depressant medication subscribed after the study started. Two others made general comments.

Eighteen participants responded from the control-stimulation group. Four had positive responses to the protocol: One mentioned losing weight, and one mentioned it helped regulate emotions. Two people mentioned their surprise the protocol worked, even though it

seemed “silly” or “a quackery.” Two experienced challenges with the protocol “difficult and uncomfortable to perform in front of others, so couldn’t do it,” “I didn’t relate. This requires being in a quiet room, which calms me regardless.” Three were conflicted, mentioning challenges and advantages: “protocol difficult to implement in the presence of others, hard to concentrate on the negative and thoughts went to the positive, but it increased my self-awareness, and I was happy I took care of myself”; “I had an anxiety attack after the start of the study and stopped in the last month. I started fearing driving long distances in the past month, but in other areas of my life felt slightly more optimistic”; “distressed minor events at the moment, but not extreme stressors.” Five people commented about the protocol or their experience without indicating if they found it helpful or not. Comments included the difficulty to perform in the presence of others, noting a body area that was uncomfortable to stimulate, and unique characteristics of the time of study which might have impacted their personal results—such as being sick with COVID-19, unusual high stress, or unusual reduced stress. Four others had general comments. I did not analyze participants’ responses to changes they experienced post intervention and during follow-up, in areas of physical health (e.g., appetite, sleep) and relationships.

Exploratory Analyses

In addition to exploration of the hypotheses, the vast amount of information collected enabled additional exploration of interest.

Characteristics of Participants who Discontinued Participation (T1)

Thirteen participants did not complete the intervention period, and they either discontinued before training or shortly after. When looking at their BAP status, it seems that a high percentage of participants were BAP-Above the Cutoff score on the Full scale, and on

the Aloof and Rigidity scales (Table 34) compared to the participants who completed the intervention period (Table 27). This finding might hint to BAP characteristics possibly attributing to attrition from treatments and should be further studied.

The Relationship Between BAP Characteristics and Perspective Takings (T2)

To explain the significant difference found between BAP-BC and BAP-AC on perspective taking scores at T2 (Hypothesis 5), I conducted linear multiple regression analyses. The basic models included scores on the IRI-PT at T1 and each of the BAP characteristics (Aloofness, Rigidity, Pragmatic Language) separately (a total of 3 models). Following, I added pairs of these characteristics to the scores on the IRI-PT at T1 (a total of 3 models). I then added all characteristics (BAPQ Total) to IRI-PT T1 scores. Finally, I added "MH diagnosis" to each of the models (7 models).

The mean and SD of BAPQ characteristics by BAP status, at baseline are presented in Table 35. Regression analyses did not reveal that this difference was predicted by the BAP personality characteristics of rigidity, aloofness, or pragmatic language, or by participants' mental health status (all $p >$. 25; Table 36).

Empathy Scales (IRI-FS, IRI-EC, IRI-DC)

Comparison of responses to the three empathy scales–The IRI-Fantasy Scale (FS), IRI-Empathic Concern (EC), and IRI-Difficult Child (DC) was done pre and post the intervention period (T1 and T2), and before and after the follow-up period (T2 and T3). The goal was to explore the data to better understand the way scores on these scales might be affected by the intervention. Mean scores and SD of these empathy measures, by condition, are presented in Table 37 (T1 and T2) and Table 38 (T2 and T3).

Using a multiple regression analysis, I checked if scores on these IRI scales at T2 could be predicted by different variables, following the models as described for the third hypothesis. Scores at T2, on each scale, were predicted by scores on that scale at T1. No other main effects or interactions existed when predicting scores at T2, on the IRI-FS (p > .18), IRI-EC (p > .25), or for the IRI-PD (p >.31). The results were similar when predicting scores at T3 by the different variables, following the models as described for the fourth hypothesis. Scores at T3, on each scale, were predicted by scores on that scale at T2. No other main effects or interactions existed when predicting scores at T3, on the IRI-FS (p > .14), IRI-EC (p > .17), or for the IRI-PD (p > .16).

Summary

Following a 2-week intervention period, participants in the TFT group, compared to participants in the control-stimulation condition, experienced a significant reduction in general stress (as measured by the PSS) and a significant increase in perspective taking (measured by the IRI-PT), when controlling for the respective scores at baseline. The effects of TFT on perspective taking were partially mediated by general stress. An effect of TFT on parenting stress was not identified.

At follow-up, no significant difference in perspective taking (IRI-PT) scores or stress scores (measured by the PSS, PSI-Total and PSI-DC and PSI-PD subscales) emerged between the groups. A significant unexpected condition effect emerged as parents in the TFT group experienced significantly higher parenting-related stress in the parent-child dysfunctional interaction domain (PSI-PCDI), compared to parents in the control-stimulation group. A main effect for current MH diagnosis also emerged, and parents without a current

MH diagnosis experienced significantly lower stress related to their experience of their child with ASD as “being difficult” (PSI-Difficult Child scale).

The number of times participants practiced during this 4-week period did not impact their scores on any of the stress measures or on the empathy (perspective taking) measure, when comparing the groups on the above-mentioned measures, or when comparing scores of participants within the TFT group.

Two hypotheses concerned the personality and social characteristics of participants. As expected, parents with BAP-Above the Cutoff score had significantly higher general and parenting-related stress scores at T1. These significant differences were maintained at T2 and T3 for all but two measures: general stress (PSS) and parental stress related to experiencing the child as difficult (PSI-DC). Participants BAP-AC and BAP-Below the Cutoff score did not differ on their PSS and PSI-DC scores post-intervention and at follow-up, and this could not be accounted for by an interaction between BAP status and the intervention condition.

Additionally, participants with BAP-AC differed from participants with BAP-BC on one of the two “other oriented” empathy measures. There was no significant difference in the IRI-Empathic Concern (EC) measure, but differences emerged for scores on the IRI-Perspective Taking scale. Although marginally significant at T1, the differences became significant at T2 and T3. Parents with BAP-BC had significantly higher perspective taking scores than participants with BAP-AC. This could not be explained by the interaction between BAP status and intervention. As expected, participants with BAP-AC and participants with BAP-BC did not have significantly different scores on measures of self-oriented empathy. Parents with BAP-AC did not have significantly different scores on the

cognitive IRI scales (Perspective Taking and Fantasy Scale) compared to the emotional scales (Personal Distress scale and Empathic Concern).

CHAPTER FIVE

DISCUSSION

A longitudinal field study found that TFT was effective in reducing general stress and increasing perspective taking after a 2-week intervention period. The effect of the intervention did not differ by participants' nationality, mental health status, or their BAP status. General stress was identified as a partial mediator to the effect of TFT on perspective taking. The total time participants in the TFT protocol condition practiced the technique did not moderate the effect of TFT at T2 on either general stress or perspective taking.

Few studies to date have explored the effect of tapping on stress (Church et al., 2012; Rogers & Sears, 2015) or explored the effects of TFT (Yancey, 2002) or EFT (Reynolds, 2010) when applied by the participants themselves, in their natural environment, long-term. In addition to bolstering the evidence for TFT's effectiveness beyond these few studies, and expanding findings to include P-ASD, to the best of my knowledge the current research is also the first to demonstrate the positive effect of TFT on perspective taking. Peta Stapleton, a leading researcher in the field of tapping, recently shared that the effects of tapping, in cases of weight loss, traumas and more, are attributed to stress reduction (P. Stapleton, personal communication, February 22, 2021). In this study, I demonstrated that stress reduction also partially mediated the positive effect of TFT on perspective taking.

The Relationship Between Stress and Empathy

A second area I explored was the relationship between stress and empathy. There is limited research on the effects of stress reduction on empathy. The current research followed two previous studies in using the IRI-Perspective Taking scale. An MSBR intervention was used to manipulate stress in both those studies. Lamothe et al. (2018) found that perspective

taking measured by the IRI increased following the interventions, but they did not measure stress pre-intervention. Beddoe and Murphy (2004) identified a decrease in stress, but no change in IRI-PT scores, presumably due to a ceiling effect. In this study, I found that both general stress decreased, and perspective taking increased following the intervention. However, my results also go beyond previous findings by identifying a mediation relationship. General stress was a partial mediator for the relationship between TFT and perspective taking, measured post-intervention.

Konrath (2013) noted that the questions of the IRI-PT scale target unidentified other people ("everybody," "other people") as the target of perspective taking. Indeed, participants in this study reported thinking of general stressors within other relationships and settings (such as with family members and co-workers). Possibly reduced general stress, within the context of relationships with others, allowed participants to feel more empathic towards these people.

Parents of Children with ASD and Stress

The current research is the first to document these positive effects of general stress reduction in a sample of parents of children with ASD (P-ASD), a group previously identified to experience high stress (Dabrowska & Pisula, 2010; Hayes & Watson, 2013; Zablotsky et al., 2013). Many studies with P-ASD focused on parenting-related stress (Dunn et al., 2001; Falk et al., 2014; Hastings et al., 2005; Zaidman-Zait et al., 2017), despite these sorts of stressors not necessarily being the parents' own focus of concern (Falk et al., 2014). The TFT technique allows participants to focus each time they tap on the stressor that is most salient and relevant given their needs at the time of tapping. Thus, this study is unique in providing the participants with agency to focus on the source of their stress as they identify

it.

Interestingly, parenting-related stress was not reduced in this study. There are a few possible explanations for this result. The first explanation concerns the theoretical assumptions of the TFT technique. Tapping is thought to collapse the perturbation—the entity that connects the emotional meaning to an event. At the beginning of the study, I explained to the participants that although they have a child with ASD, the source of stress does not have to be related to ASD. Therefore, it is possible that participants chose to focus on general stressors while tapping and therefore that type of stress was reduced. The study was held during the COVID-19 pandemic. General stressors possibly rose in areas of health, employment, social isolation, personal and work relationships, work-life balance, and more. Additionally, the political climate in the USA, with the presidential elections held in November 2020, and increased awareness of race-related discrimination led by the Black Lives Matter movement, were mentioned informally by participants as stressors. In this study, a quarter of the participants elected to report the topics on which they focused during their tapping in the post-questionnaire. In both groups, most parents indeed reported focusing on general stressors, unrelated to their parenting role, or unrelated to parenting a child with ASD. Rather, stressors concerned work, relationships, personal issues, another adult's health, or moving to a new apartment.

Another potential explanation for the lack of effect of TFT on parent-related stress pertains to the instructions participants received when completing the Parent Stress Index. The parents were asked to hold the child with ASD in mind, despite the instruction to focus on *any* stressor while applying the protocols. However, parenting-related stress is not limited to the child with ASD. Indeed, the few parents who reported tapping on issues related to their

children, mentioned issues concerning another child (an illness), or all children ("virtual school" or being unable to address everyone's needs). Thus, it is plausible that asking parents to fill out the parenting stress questionnaire in relation to their child with ASD precluded the possibility of observing an impact of TFT on parenting-related stress if the source of parents' stress was a different child.

Additionally, under the unique circumstances of the COVID-19 pandemic, at the time of data collection in both Israel and the USA many of the parents to children with developmental differences continued to send their children to learn in in-person environments even when most schools in both countries relied heavily on virtual learning. Thus, it is possible that parenting-related stress was maintained at its pre-pandemic levels whereas other sources of stress were heightened during the study period. Parents may have experienced a greater sense of control and stability related to children's education compared to the low levels of control and stability they experienced in other life domains (such as work or health). Thus, independent of the technique, parenting-related stress did not change, while general stressors rose.

Finally, there is the question of whether TFT fits as an intervention to affect parenting stress in the absence of additional, comprehensive, interventions. Many factors impact parenting stress, including the severity of the child's symptoms, child behaviors, and co-morbidities (Falk et al., 2014; Jones et al., 2014; Miranda et al., 2019; Osborne et al., 2008a; Osborne & Reed, 2009; Yorke et al., 2018; Zablotsky et al., 2013; Zaidman-Zait et al., 2017), parents' individual differences and coping strategies (Falk et al., 2014; Ingersoll & Hambrick, 2011; Osborne & Reed, 2010; Yorke et al., 2018; Zaidman-Zait et al., 2017), as well as social support, living conditions, and family dynamics (Deater-Deckard, 1998;

Zablotsky et al., 2013). While TFT can help with personal, general stressors, more complex and systemic challenges that require intervention within a system (dyad, family) also require additional professional support to create a difference. Participants in the TFT group indeed indicated receiving parent-education from professionals, more than participants in the control-stimulation condition. Perhaps parents chose general issues, knowing that parenting-related concerns were addressed elsewhere.

Thus, the results of this study are an important reminder that many sources of stress co-exist, and that a careful exploration of parents' stressors should precede interventions in the field. Many interventions focus on children's behaviors as a source of parents' stress (Falk et al., 2014). Nonetheless, it was general stress that TFT reduced in this study. The parents in this study chose the stressor to tap on, and those who reported the topics of their tapping (about a quarter of the participants) mentioned, in both groups, mostly general issues. This finding should alert clinicians, educators, and others who work with children with ASD and their families, to assess the individual and family needs in an open-minded manner. Possibly, supporting parents with non-ASD-related challenges can positively impact other relationships within the ASD context.

Two significant differences between the groups emerged at follow-up. Interestingly, and contrary to the hypothesis, the stress related to parent-child interaction (PSI-PCDI scale) *increased* for participants in the TFT condition. At baseline, a higher percentage of parents in the TFT group expressed dissatisfaction with their relationship with their child with ASD. Perhaps decreased general stress (following the intervention) allowed P-ASD to shift attention and emotional resources to aspects related to the relationship with their child. If parents experienced more challenges in their interaction with their child with ASD, yet did

not focus on those challenges when tapping, stress related to the parent-child relationship would not have been reduced.

The second significant difference was in parenting stress related to experiencing the child's symptoms as being difficult (PSI-DC scale). At follow-up, parents with no MH diagnosis had significantly lower parenting-related stress levels specific to how difficult they perceive their child to be, compared to parents with a MH diagnosis. Studies show that the prevalence of depression, anxiety, and other mental health issues is high among P-ASD (Falk et al., 2014); however, the specific MH diagnoses of the parents in my study were not reported. Although it was previously suggested that parents with a MH challenge experience the same behavior as more difficult compared to parents without a MH challenge (Najman et al., 2000), this difference between parents with and without a MH diagnosis only appeared at follow-up. Possibly the persistence of the pandemic and the difficulties it created were experienced as more challenging for parents with a MH diagnosis compared to parents without MH diagnosis. This possibility is consistent with the idea that parents without a MH diagnosis might have better strategies, or more realistic expectations regarding their child with ASD, and consequently experience the child's behavior as less stressful.

The general stress and parenting stress (PSI-Total scale) scores of participants in the control-stimulation group decreased at follow-up relative to their level post-intervention, though not significantly. Perhaps participating in the study was a stressor, especially if during the intervention period participants expected an improvement but did not experience one. The ability to choose the frequency of practice during follow-up might have helped reduce stress related to the study. Personal, local events (such as the conclusion of the presidential

elections in the USA in November 2020), and pandemic-related events (anticipating approval of immunizations for COVID-19) might have also contributed to reduced stress at follow-up.

The Long-Lasting Effects of the Intervention

A 4-week practice-by-will follow-up period followed the intervention phase. No additional change was identified for general stress or perspective taking. The average general stress score for the participants in the TFT group did not return to the levels at T1. This indicates that the benefits of the intervention were sustained. The participants who shared the topics of their tapping reported tapping on the same general stressors as reported post-intervention. According to the assumptions of TFT, if practice during the intervention period helped decrease general stress to manageable levels, then "the problem was solved," and there will not be an additional reduction in stress. Within the TFT group, the number of practices during the follow-up period did not correlate with stress levels or perspective taking, supporting this view. These findings are similar to those of Bazarko et al. (2013) who saw no additional decrease in stress or increase in empathy between intervention and follow-up of a telephonic version of MSBR in a non-randomized controlled trial (Bazarko et al., 2013).

Broad Autism Phenotype, Stress, and Empathy

In this study, I measured broad autism phenotype personality and social characteristics of P-ASD. Although some P-ASD have been identified with subclinical traits of autism (for a review, see Sucksmith et al., 2011), a measure of BAP was rarely included in previous studies (Falk et al., 2014; Hayes & Watson, 2013).

Ingersoll and Hambrick (2011) previously suggested that parents with BAP characteristics experience high levels of stress. Indeed, at baseline participants with BAP-AC

experienced higher general and parenting-related stress on all measures compared to parents without BAP-AC. At T2, these differences disappeared and there was no longer significant difference in general stress (PSS) or in stress related to the participants' experience of their child as being difficult (PSI-DC). However, the intervention helped participants regardless of their BAP status; there was no significant interaction between BAP status and intervention condition.

The relationship between BAP and empathy, as measured by the IRI scale, is more complicated. There is disagreement in the field whether empathy challenges are part of the BAP (Jamil, 2016). My findings lend support to the idea that perspective-taking challenges are part of the BAP. The only measure that differed between the BAP-Above Cutoff and BAP-Below Cutoff groups, at all measurement times, was Perspective Taking, a cognitive other-oriented empathy scale. The difference was marginally significant at baseline, became significant post-intervention, and remained significant at follow-up. Participants with BAP-BC had higher perspective-taking scores than BAP-AC, and there was no interaction between BAP status and the intervention. Perspective-taking has been previously shown to change following other interventions (Konrath, 2013; Lamothe et al., 2018). The current findings suggest that perspective-taking tendencies can change over time, as indicated by an increase in the perspective-taking tendencies of BAP-BC. However, the lower propensity of participants with BAP-Above the Cutoff score to engage in perspective taking (with the mean score in this group decreasing between T1 and T3), suggests that taking others' perspective poses a challenge for people with BAP-AC. The characteristics that hinder positive change require further exploration. The current findings cannot determine whether particular personality and social characteristics of the BAP— aloofness, rigidity, or

pragmatic language (subscales of the BAPQ)—separately or combined, or a MH diagnosis in addition to any and all of these characteristics, are the ultimate reason for the lower perspective-taking scores post-intervention.

I also found that people with BAP characteristics Above the Cutoff score (BAP-AC) showed similar levels of emotional vs. cognitive empathy. The empathy imbalance hypothesis, which attempts to explain the relationship between people with ASD and empathy, suggests that people with ASD can feel empathy but have difficulties understanding it (A. Smith, 2009). My results do not lend support to the empathy imbalance hypothesis with regards to people with BAP-AC.

Interestingly, a separate comparison of the 13 participants who discontinued participation before training or shortly after (and did not complete the intervention period) revealed that 30% of them had personality and social BAP characteristics (BAP-Above Cutoff) on the BAPQ Full scale and the Rigidity subscale, and almost half of these participants presented Aloof characteristics. These higher rates, compared to participants who did complete the intervention, might be a warning sign for practitioners. Parents with a tendency toward rigidity might find it difficult to integrate a new practice into their daily routine. Participants with a tendency toward aloofness might lack motivation to actively participate in their own therapy, or in their child's or their family's treatment. Identifying parents' BAP characteristics might be central to engaging parents in therapy, and to the success of any intervention.

Limitations

Despite its strengths, the study is not without limitations. First, the method of advertisement affected sample characteristics. The invitation to participate in the study was

available to all, but most of the participants were women. I advertised in non-gender-specific social groups and via organizations, as well as in mother-only groups (via Facebook). My requests to share the invitation in father groups were denied by the administrators or left unanswered. Thus, more mothers than fathers were potentially exposed to this opportunity. Possibly more mothers than fathers also tend to use social media or mixed-gender groups on social media as their source of information. Fathers of children with DDs are rarely included in studies or are outnumbered by mothers (Rivard et al., 2014; G. H. S. Singer et al., 2007). Unfortunately, this study is not different. Additionally, all men were from Israel, and by random assignment, all but one were assigned to the TFT condition. I do not, however, have a reason to believe that results including males would have been different, as previous studies with TFT have not pointed to a gender effect. This, however, could be incorporated into a future study. Additionally, the method of advertisement of the study – social media and online websites, and the online method of training, limited the accessibility to this study to those with access to the mentioned mediums. Thus, while creating increased accessibility due to the online method of training, the sample is not representative of the Israeli and U.S. societies. For example, ultraorthodox and Arab P-ASD are unrepresented groups from Israel.

Second, confirmation of child diagnosis as ASD was based on parent report and was not reassessed for this study. Parents whose children did not have a formal diagnosis were excluded through a pre-screening conversation or by the inclusion/exclusion questionnaire. Therefore, I believe that only parents with children formally diagnosed were included in the study, and that to the best of the parents' knowledge, their children indeed had ASD.

Third, the measures used, the Perceived Stress Scale (PSS-10; Cohen et al., 1983); the Parent Stress Index, short form, 3rd edition (PSI/SF-3e; Abidin, 1995); the Interpersonal

Reactivity Index (IRI; Davis, 1980, 1983), the Broad Autism Phenotype Questionnaire (BAPQ; Hurley et al., 2007); and the questionnaires developed for this study, are all self-report measures. Hence, data collected are subject to self-report bias, including social desirability and self-perception biases (Jamil, 2016; Zhao et al., 2019). The PSI flags responses suspected to be biased via the "Defensiveness scale". However, it is difficult to detect biased reporting in the PSS or IRI. The Perspective Taking and Emotional Concern scales of the IRI have been found to be more sensitive to these biases on the one hand, although they do correlate with observer report, on the other hand (Konrath, 2013). As for BAP, in this study, 25% of the participants were found to have BAP characteristics (Full scale) based on self-reports. This percentage is close to the 23% (Sasson, Lam et al., 2013) and 21% (Seidman et al., 2012) found when self-reports and informant-reports were used. Therefore, the responses seem reliable.

Fourth, differences that existed pre-intervention may be a cause for caution in interpreting the results of the study. While some of these differences could have been a source of resilience, others might have created a sensitivity to stress. For example, as a result of random assignment to conditions, compared to parents in the control group, more parents in the TFT group were supported by parent education from professionals and perceived their child's symptoms as "neutral," and a higher percentage expressed being satisfied with the relationship with their child—all potential buffers to stress. However, compared to the control group, more parents in the TFT group had children with additional diagnosis to ASD. Although there were fewer parents with a current MH diagnosis in the TFT group as compared with the control group, not many of these parents received treatment, and a higher percentage of the parents was dissatisfied with their relationship with their child. These are

potential risks for stress. Compared to the TFT group, in the control-stimulation group more parents were satisfied with their social support, and a higher percentage of the parents experienced their child's symptoms as "easy," which could help manage stress. However, a higher percentage had a current MH diagnosis—a possible stressor, despite a higher percentage also being treated for their MH condition. Fewer parents in the control-stimulation group received parent education support.

It is virtually impossible to control for *all* the sources of stress and resiliency. In addition to random assignment to conditions, my analyses controlled for the existence of a current mental health diagnosis (though not for treatment or medication). While originally I planned to exclude parents with a MH diagnosis, this sample did include participants with a MH diagnosis, with all but one coming from the USA group. The reality is that a high percentage of P-ASD experience MH challenges, especially depression (Falk et al., 2014). Thus, this sample better represents the needs and challenges of P-ASD.

Fifth, I was the researcher and trainer, and thus not blind to the hypotheses. Unlike myself, the individuals that assigned participants to conditions by a flip of a coin, were unaware of the characteristics of each participant and of the condition to which they were assigned (named "Orange" and "Banana"). To control for potential variations in the training sessions, I followed a script in which only the intervention itself differed. The length of the training for the TFT group was significantly longer. I believe this resulted from greater complexity of the TFT protocol compared to the control-stimulation protocol. Lending support to this view, participants viewed the TFT instructional video more times than they viewed the control-stimulation video (based on view counts on YouTube). Despite the greater potential complexity of the TFT protocol, participants possibly experienced a positive

change and persevered, resulting in significant changes to their levels of stress and perspective taking. Additionally, had training length alone made a difference, I should have found significant effects on other measures, if not all measures. However, future researchers should aspire to better control for the complexity of the interventions in the different conditions.

Finally, I was unable to assure participants applied their protocols correctly. Most of the participants reported that they believed they had. To control for unintended stimulation of acupoints in the fingertips (Baker et al., 2009; Lane, 2009), participants in the control-stimulation group were instructed to use an open palm. This was emphasized during the live training, and in the supportive materials (the administration sheet and the videos). However, I could not verify that participants were following this instruction during their daily practice. Yet, the significant differences between groups in general stress and perspective taking imply that change can be attributed to the unique characteristics of TFT. The intervention protocols differed only by manipulation of acupoints in the TFT condition (and lack thereof in the control-stimulation condition), supporting that tapping of acupoints is a necessary part of the TFT protocol.

Promising Directions for Future Research

Differentiating Sources of Stress

While TFT decreased general stress in the current study, parenting-related stress did not change. In future TFT studies, researchers should differentiate the sources of stress participants "tap on" to explore the relationship between the topics of stress and experienced outcomes. This could be done by asking participants to document the topic of the thoughts they held when practicing or by systematically varying whether they are asked to focus only

on parenting-related issues. Additionally, in the context of families with a child with ASD, it might be other children who are the source of parental stress. In that case, allowing parents to fill out a parenting questionnaire about the child who is the source of stress might help researchers identify the efficacy of TFT for parenting-related stress.

Using Diverse Outcome Measures

The measures used in this study were self-reports. Adding hormonal (cortisol to measure stress) or behavioral measures (for empathy) could add to the validity of the findings and contribute to the understanding of how the subjective report of stress reduction and perspective taking increase, translate into actions, if at all. Additionally, supplementing self-reports with other-reports could illuminate the extent to which positive change experienced by the participant is also recognizable by others (e.g., family members and care givers).

Comparing TFT to Evidence-Based Tools

The current study established the superiority of TFT over a control-stimulation protocol for alleviation of general stress and for increasing perspective taking. Future research should explore the efficacy of TFT in reducing general stress and increasing perspective taking compared to other evidence-based tools.

Unpacking the Indirect Effect

Emotion regulation and self-agency are important contributors to perspective taking (Decety & Jackson, 2006). Future researchers could explore whether stress reduction impacted perspective taking due to better emotion regulation, greater self-agency, or both. Understanding how reductions in stress translate into increased perspective taking can also inform interventions.

Controlling for Participants' Openness to Share Their Stressors

All the participants thought of a particular stressor during their training. However, some of the participants shared it with me whereas others did not. This difference may reflect differential levels of trust or reactions to the training that subsequently shaped participants' experiences and engagement with the intervention in their assigned condition. In future studies, researchers should control for this element of the training as a possible source of variability.

Conclusions

In this mixed-model, randomized control trial, I explored the effects of a stress-reduction thought field therapy protocol vs. a control-stimulation protocol on general stress, parenting stress, and empathy (perspective taking). This was the first study, to my knowledge, that explored the effects of a TFT protocol on empathy, and one of the few that measured changes in stress over time.

P-ASD, from Israel and the USA, were asked to practice their protocols three times daily during the 2-week intervention period, and by will and need during the 4-week follow-up period. The TFT protocol significantly reduced general stress and increased perspective taking of P-ASD. Additionally, a significant indirect effect of TFT on perspective taking was found, via general stress reduction. This partial mediation finding enhances our understanding of the effects of stress reduction on empathy.

P-ASD have previously been identified as experiencing high stress compared to parents of neurotypical children or children with other developmental differences (Falk et al., 2014). Researchers have recommended that stress reduction strategies be part of treatment plans and intervention programs for parents of children with developmental delays (Lindo et

al., 2016) and specifically for P-ASD (Osborne & Reed, 2009; G. H. S. Singer et al., 2007). Researchers have also noted that interventions that develop skills to reduce stress have the potential to encourage resilience and long-term positive outcomes for families (Lindo et al., 2016; G. H. S. Singer et al., 2007). TFT fits into this description. As the number of children diagnosed with ASD continues to rise, TFT can be offered to parents as a self-help tool and integrated into treatment plans easily. TFT is a cost-effective tool that participants learned remotely during a single half-hour, online session, with additional support of written and videotaped material. The protocol was generic (as opposed to individually tailored tapping sequences addressing each individual's specific stressors and emotions), and yet effective. Participants chose their stressors at the time of practice and had control over the time and frequency of practice.

I included in this study a measure of personality and social-related broad autism phenotype characteristics, to explore the relationship between BAP characteristics (aloofness, rigidity, and pragmatic language difficulties), stress, and empathy. I found that pre-intervention, parents with BAP scores above the cutoff score (BAP-AC) experienced higher general and parenting-related stress and lower perspective-taking scores. This highlights the importance of identifying parents' differences in this domain, for properly tailored interventions. Post-intervention, TFT proved to be effective in reducing stress for participants regardless of their BAP status. The difference in perspective taking was sustained. This finding adds to the scholarly discussion regarding the inclusion of empathy as a BAP characteristic, and supports the inclusion of perspective-taking challenges (as a form of empathy) in the BAP. However, the personality and social characteristics of the BAP, measured in this study (aloofness, rigidity, or difficulties in pragmatic language) did not

emerge as the reason participants with BAP-AC had lower perspective-taking scores compared to participants with BAP scores below the cutoff point (BAP-BC), post intervention.

To conclude, TFT was found to be an effective technique for reducing general stress and increasing perspective taking of P-ASD following a 2-week intervention, with results sustained at a 4-week follow-up. Assessing P-ASD for BAP characteristics can inform researchers and practitioners in their future work, since parents who presented with the personality and social characteristics of the BAP also had higher general- and parenting-related stress, and lower perspective-taking scores compared to those who did not.

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Tables and Figures

Figure 1

Participant Flowchart

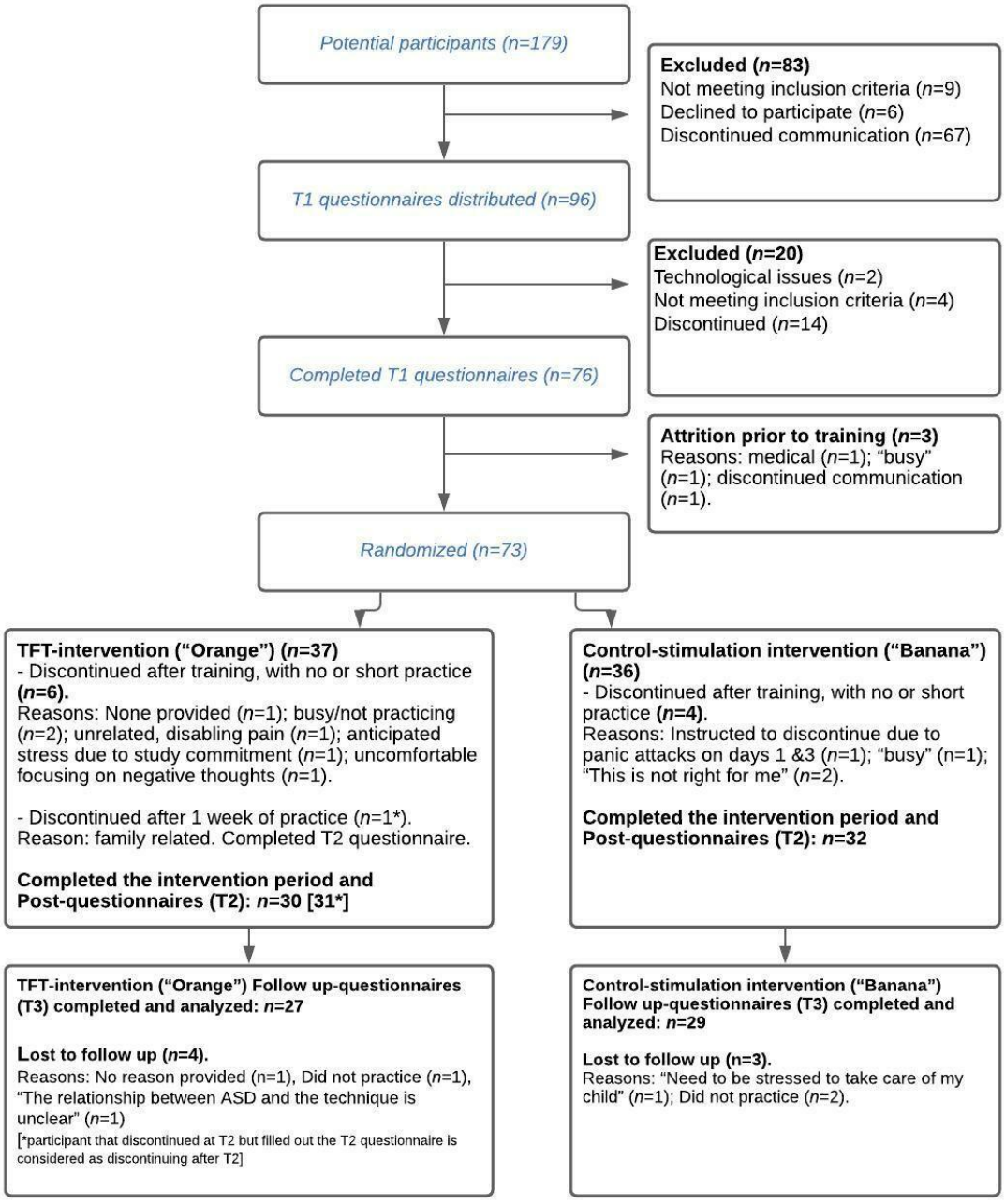


Table 1

Group Differences on Stress and Empathy Measures, and BAPQ Scores, Time 1 (T1)

Variables/**T1**	**TFT-intervention** ***n* = 31**		**Control-stimulation** ***n* = 32**		***t/W***	***p***
	M	***SD***	***M***	***SD***		
PSS	22.65	5.30	23.12	6.41	$t(56.83) = 0.536$	.59
PSI-Total	112.61	20.02	115.84	23.19	$t(60.219) = 0.59$	.55
PSI-PD	38.26	7.32	38.78	8.33	$t(60.438) = 0.26$	.79
PSI-PCDI	32.81	8.33	34.03	9.06	$t(60.83) = 0.56$	.57
PSI-DC	41.55	9.28	43.03	9.62	$t(60.999) = .62$	.54
IRI-PT	19.06	4.70	19.62	4.43	$t(59.96) = .47$	.64
IRI-FS	17.45	6.62	17.44	5.47	$t(58.149) = -.009$	.99
IRI-EC	22.61	3.66	21.22	5.05	$W = 420$	.30
IRI-PD	13.13	6.15	13.25	5.44	$t(59.585) = .82$	.93
BAPQ full scale	102.52	25.04	105.41	20.92	$t(58.435) = .496$	.62
BAPQ Aloof	35.16	10.40	38.31	10.25	$t(60.871) = 1.211$	.23
BAPQ Rigidity	37.10	9.20	37.56	9.50	$t(61) = .197$	.84
BAPQ Pragmatic language	30.26	10.11	29.53	8.52	$t(58.623) = -.308$	.76

Table 2

Mean and SD of the PSS and PSI Stress Measures and the Perspective Taking (IRI-PT) Empathy Measure, at Time 1 (T1) and Time 2 (T2), by Intervention

	TFT-intervention *n* = 31; 18 ISR, 13 USA				**Control-stimulation *n* = 32; 17 ISR, 15 USA**			
	T1		**T2**		**T1**		**T2**	
Variables	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
PSS	22.65	5.30	17.84	6.04	23.12	6.41	21.25	6.02
PSI-Total	112.61	20.02	107.52	19.58	115.84	23.19	112	20.99
PSI-PD	38.26	7.32	35.77	7.23	38.78	8.33	37.75	8.30
PSI-PCDI	32.81	8.33	30.90	7.22	34.03	9.06	33.19	8.34
PSI-DC	41.55	9.28	40.84	8.80	43.03	9.62	41.06	9.66
IRI-PT	19.06	4.70	20.68	4.62	19.62	4.43	19.28	4.82

Table 3

Mean and SD of the PSS and PSI Stress Measures and the Perspective Taking (IRI-PT) Empathy Measure Scores at Time 3 (T2) and Time 3 (T3), by Intervention, for Participants that Completed T3

	TFT-intervention *n* = 27; 17 ISR, 10 USA				**Control-stimulation *n* = 29; 14 ISR, 15 USA**			
	T2		**T3**		**T2**		**T3**	
	M	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
PSS	17.96	6.38	17.85	4.15	21.52	6.17	18.90	4.99
PSI-Total	107.19	18.88	106.96	18.76	113.79	21.23	108.59	19.9
PSI-PD	35.56	7.09	34.52	6.63	37.76	8.49	35.34	7.32
PSI-PCDI	30.67	7.00	32.3	8.44	33.21	8.26	31.52	7.01
PSI-DC	40.96	8.79	40.15	7.99	41.21	9.89	41.72	9.52
IRI-PT	21.11	4.78	19.78	4.81	19.34	5.02	19.31	4.91

Table 4

Comparison of the Number of Days Practiced, the Number of Daily Practices, and Total Practice at Time 2 (T2) and Time 3 (T3), by Intervention Group

	TFT-intervention (*n* = 31) 18 ISR, 13 USA			**Control Stimulation (*n* = 32) 17 ISR, 15 USA**						**TFT-intervention**	**Control-stimulation**
T2	***M***	***SD***	**range**	***M***	***SD***	**range**	***W***	***p***	**practices**	***n (%)***	***n (%)***
Number of days practiced	12.74	2.00	8-14	11.84	2.91	2-14	388.5	.118	-	-	-
Number of daily practices	2.10	0.83	1-3	2.00	0.67	1-3	458.5	.585	One Two Three	9 (29) 10 (32) 12 (39)	7 (22) 18 (56) 7 (22)
Total Practices*	27.13	11.98	8-48	24.81	11.1	2-42	421.5	.303			
	TFT-intervention (*n*=27) 17 ISR, 10 USA			**Control Stimulation (*n*=29) 14 ISR, 15 USA**						**TFT-intervention**	**Control-stimulation**
T3	***M***	***SD***	**range**	***M***	***SD***	**range**	***W***	***p***	**Practices**	***n (%)***	***n (%)***
Number of days practiced	14.93	11.03	0-30	12.76	10.05	0-30	346	.459	-	-	-
Number of daily practices	1.37	0.97	0-3	1.28	0.96	0-3	368.5	.697	None One Two Three	5 (18.5) 11(40.7) 7 (26) 4 (14.8)	6 (20.6) 13 (44.8) 6 (20.6) 4 (13.7)
Total Practice*	26.56	27.63	0-90	22.97	27.65	0-90	348.5	.484			

* “Number of days practiced X “Number of daily practices”

Table 5

BAPQ Status, by Time and Condition

	T1, T2						T3					
	TFT (n = 31)		Control (n = 30)*		$X^2(1, N = 61)$	p	TFT (n = 27)		Control (n = 27)*		$X^2(1, N = 54)$	p
BAPQ status	*n*	*%*	*n*	*%*			*n*	*%*	*n*	*%*		
Above Cutoff	7	22	8	26	0.005	.94	7	26	6	22	0	1
Below Cutoff	24	78	22	74			20	74	21	78		

** Two participants with ASD were removed from the analysis

Table 6

Sociodemographic Categorical Characteristics of Participants at Baseline (Time 1)

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Gender	31		32		35		28	
Female	25	81	31	97	28	80	28	100
Male	6	19	1	3	7	20	0	0
Nationality	31		32				28	
Israel	18	58	17	53			-	-
USA*	11	35	13	40	35	100	24	86
Canada	1	3	1	3			2	7
Other*	1	3	1	3			2	7
Area of residence, USA 12 USA states	*n*=11, from 7 states		*n*=12, from 7 states		-	-	-	-
Area of residence, Israel only	18		17		35			
North	4	22	1	6	5	14		
Central	11	61	12	71	23	66		
South	1	6	1	6	2	6		
Jerusalem area	2	11	3	17	5	14		
Ethnicity, USA only	13		15		-	-	28	
Asian/Asian American	1	8	0	0			1	4
Black/African American	1	8	1	6.6			2	7
White/Caucasian	8	61	12	80			20	71
Other	3	23	1	6.6			4	14
Decline response	0	0	1	6.6			1	4
Home language	31		32		35		28	
Hebrew	16	51	16	50	32	91	0	0
English	13	42	15	47	0	0	28	100
Russian	2	7	1	3	3	9	0	0
Religion	31		32		35		28	
Jewish	18	58	16	50	33	94	1	4
Christian	8	26	11	34	0	0	19	68
Other	2	6	4	13	2	6	4	14
Declined	3	10	1	3	0	0	4	14

Table 6 - Cont'd.

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Religiosity	31		32		35		28	
Secular	14	45	15	47	27	77	2	7
Somewhat religious	9	29	9	28	6	17	12	43
Religious	5	16	2	6	1	3	6	21
Deeply religious	0	0	6	19	1	3	5	18
Other	2	7	0	0	0	0	2	7
Declined	1	3	0	0	0	0	1	4
Relationship to child	31		32		35		28	
Biological	29	94	30	94	35	100	24	86
Non-biological	2	6	2	6	0		4	14
Personal status	31		32		35		28	
Single	1	3	3	9	1	3	3	11
Married	24	77	23	72	29	83	18	64
Divorced	4	13	5	16	3	8	6	21
Unmarried, In a committed relationship	2	7	0	0	1	3	1	4
Declined	0	0	1	3	1	3	0	0
Education	31		32		35		28	
8 years	0	0	1	3	1	3	0	0
12 years	2	6	1	3	2	6	1	4
15 years	7	23	9	28	8	23	8	8
17 years	7	23	5	16	8	23	4	14
18+ years	13	42	14	44	15	42	12	43
Other	2	6	2	6	1	3	3	11
Income, average, Israel (NIS)	18		17		35		-	-
Above average	2	11	4	24	6	17	-	-
Average	14	78	7	41	21	60	-	-
Below average	2	11	5	29	7	20	-	-
No response	0	0	1	6	1	3	-	-

Table 6 - Cont'd.

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Income, Median, USA (US$) **	13		15		-	-	28	
Above median	3	23	6	40	-	-	9	32
Median	2	15	1	7	-	-	3	11
Below median	5	39	6	40	-	-	11	39
No response	3	23	2	13	-	-	5	18
Employment status	31		32		35		28	
Full time	20	65	12	37	18	51	14	50
Part time	4	13	7	22	9	26	2	7
Homemaker	1	3	5	16	1	3	5	18
Other	5	16	4	12.5	3	9	6	21
Unemployed, seeking	1	3	4	12.5	4	11	1	3
Parent's health status	31		32		35		28	
Poor	2	6	0	0	0	0	2	7
Good	17	55	21	66	20	57	18	64
Excellent	12	39	11	34	15	43	8	29
Parent diagnosed w/ASD	31		32		35		28	
Yes	0	0	2	6	0	0	2	7
No	31	100	30	94	35	100	26	92
Parent had a MH diagnosis, no longer current	31		32		35		28	
Yes	7	23	8	25	9	26	6	21
No	24	77	24	75	26	74	22	79
Parent currently diagnosed with a MH condition (not ASD)	31		32		35		28	
Yes	6	19	10	31	1	7	15	54
No	25	81	22	69	34	97	13	46

Table 6 - Cont'd.

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Parent treated for current diagnosis	6		10		1		15	
Yes	3	50	7	70	1	100	9	60
No	3	50	3	30	0		6	40
Medication taken by parent	31		32		35		28	
Physical issue	7	22	6	19	8	23	5	18
Mental Health	3	10	5	16	2	6	6	21
Both	3	10	2	6	1	3	4	14
No medication	18	58	19	59	24	68	13	47
Parent receives help for basic needs	31		32		35		28	
Yes	9	29	8	25	10	29	7	25
No	22	71	24	75	25	71	21	75
Provider of basic needs support (multiple responses possible)	9		8					
Municipality or government agency	8		7		9		6	
Family	2		2		2		2	
Spouse	2		1		1		2	
Friends	1		1		1		1	
Social organizations/ donors	1		1		1		1	
Parent receives parent education	31		32		35		28	
Yes	15	48	12	37.5	22	63	5	18
No	15	48	20	62.5	13	37	22	78
Declined response	1	4	0	0	0	0	1	4

Table 6 - Cont'd.

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Provider of parent education (multiple responses possible)	15		12		33		27	
Professionals	9		6		15		0	
Spouse	2		4		6		0	
Family	4		5		9		0	
Friends	1		4		4		1	
Religious leader	1		0		0		1	
Municipal or government agency	8		3		10		3	
Social organizations /donors	0		3		1		2	
Satisfied from social support	31		32		35		28	
Yes	18	58	23	72	24	69	17	61
No	13	42	9	28	11	31	11	39
Number of children parented, with ASD	31		32		35		28	
One child	27	87	28	88	31	88	24	86
Two children	2	6.5	3	9	2	6	3	10
Three children	2	6.5	0	0	1	3	1	4
Four children	0	0	1	3	1	3	0	0
Number of children with another diagnosis*** (excluding child with ASD)	30		31		35		26	
None	20	66.7	24	77	28	80	16	62
One child	8	26.7	7	23	7	20	8	30
Two children	1	3.3	0	0	0	0	1	4
Three children	1	3.3	0	0	0	0	1	4

Table 6 - Cont'd.

* Other=English speaking countries, not USA or Canada. ** USA includes 4 participants from other English-speaking countries.

*** Developmental, medical, emotional, physiological, educational, etc. Two participants removed because total number of kids reported was smaller than “kids with an additional diagnosis.”

Table 7

Categorical Characteristics of the Child with ASD[a] at Baseline (T1)

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Child's sex	31		32		35		28	
Male	25	81	19	60	26	74	18	64
Female	6	19	13	40	9	26	10	36
Does the child have additional diagnosis?	31		32		35		28	
Yes	16	52	15	47	13	37	18	64
No	15	48	16	50	21	60	10	36
Declined response	0	0	1	3	1	3	-	-
Child's order in the family	31		32		35		28	
First/oldest	13	42	19	59	16	46	16	57
Second	12	39	6	19	14	40	4	14
Third	5	16	6	19	4	11	7	25
Fourth	1	3	0	0	1	3	0	0
Fifth	0	0	1	3	0	0	1	4
Child's residency	31		32		35		28	
With participant	30	97	32	100	35	100	27	96
With another parent	1	3	0		0		1	4
Child's caretaker	31		32		35		28	
Participant	10	32	13	41	12	34	11	39
Participant and family member	20	65	19	59	22	63	17	61
Non-family	1	3	0	0	1	3	0	0
Child's educational setting during routine	31		32		35		28	
Typical setting	8	26	9	28	8	23	9	32
Special class, typical school	4	13	8	25	8	23	4	14
Mainstream	3	9.5	2	6.5	3	8	2	7
Special school	9	29	3	9	12	34	0	0
Home schooled / care at home	4	13	4	13	1	3	7	25
Homeschooled and another setting	0	0	2	6.5	2	6	0	0

Table 7 - Cont'd.

	TFT-intervention		Control-stimulation		Israel		USA group	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***
No response	3	9.5	3	9	1	3	5	18
Inconsistent response	0	0	1	3	0	0	1	4
Child currently home due to COVID-19	31		32		35		28	
Yes	9	29	11	34	4	11	16	57
Parent's satisfaction from the relationship with the child	31		32		35		28	
Very high	11	35	7	22	8	23	10	36
High	12	39	14	44	19	54	7	25
Neutral	4	13	9	28	5	14	8	29
Low	4	13	0	0	1	3	3	10
Very low	0	0	2	6	2	6	0	0
Parents' perception of the severity of child's ASD symptoms	31		32		35		28	
Very severe	3	10	4	12.5	6	17	1	4
Severe	8	25	8	25	10	29	6	21
Neutral	17	55	13	40.5	13	37	17	61
Not severe	3	10	5	16	5	14	3	10
Easy to be with	0	0	2	6	1	3	1	4

[a] Child of focus when responding to questionnaires if parenting multiple children with ASD

Table 8

Sociodemographic Continuous Characteristics of Participants at Baseline (T1)

	TFT-intervention			**Control-stimulation**				**Israel**			**USA**			
	n	***Mean***	***SD***	***n***	***Mean***	***SD***	**Comparison**	***n***	***Mean***	***SD***	***n***	***Mean***	***SD***	**Comparison**
Parent's age, years	31	0.03	6.16	32	8.59	7.02	$p = .441$	35	40.74	4.75	28	37.5	8.08	$W = 640$ $p = .038$
Number of children	31	2.52	1.03	32	2.28	0.99	$W = 426$ $p = .309$	35	2.46	0.92	28	2.32	1.12	$W = 535.5$ $p = .507$
Age of oldest child* (months)	31	122.52	54.44	32	132.00	99.26	$W = 438.5$ $p = .433$	35	118.06	63.57	28	138.93	96.53	$p = .736$
Age of youngest child (months)*	27	66.74	47.58	27	66.74	47.58	$p = .748$	32	59.12	34.86	21	68.76	50.71	$W = 312.5$ $p = .675$
Age of child with ASD (months) **	31	90.52	7.21	32	80.38	37.64	$p = .431$	35	84.69	35.1	28	86.21	51.09	$W = 512$ $p = .766$
Age of child-ASD at diagnosis (months) ***	14	68.79	57.84	18	54.94	26.85	$p = .702$	4	66.25	23.07	28	60.25	45.35	$p = .327$

*Parents with more than one child; **If more than one child with ASD, this was the child of focus when completing the questionnaires; ***Incomplete data due to a collection error

Table 9

Pre-intervention Procedure Related Variables, by Intervention Group and Nationality

	TFT-intervention			**Control-stimulation**				**Israel**			**USA group**			
	n	***Mean***	***SD***	***n***	***Mean***	***SD***	***W***	***n***	***Mean***	***SD***	***n***	***Mean***	***SD***	***W***
Training length (minutes)	31	34.03	7.08	32	28.25	4.46	$W = 242.5$ $p < .001$*	35	29.91	6.43	28	32.57	6.48	$W = 416.5$ $p = .90$
Effectiveness expectation post training (scale 1,3,5)	26	3.15	0.88	26	3.46	0.99	$W = 395.5$ $p = .209$	30	3.07	0.78	22	3.64	1.05	$W = 215.5$ $p = .01$
Other family-participants in the study	31			32			-	35			28			-
No	30			32				34			28			
Don't know	1			0				1			0			

* Results remained significant after extreme outliers were removed

Table 10

Post-Intervention (T2) and Follow-Up (T3) Subjective Reports, Categorical Variables

	T2		T3	
	TFT (*n* = 31)	**Control (*n* = 32)**	**TFT (*n* = 27)**	**Control (*n* = 29)**
	n (%)	***n (%)***	***n (%)***	***n (%)***
Participants believe they followed the procedure correctly				
Yes	27 (87)	25 (78)	21 (78)	26 (90)
No	0	1 (3)	0	0
Unsure	4 (13)	6 (19)	6 (22)	3 (10)
Focus of thoughts				
Related to child w/ASD	9 (29)	8 (25)	7 (26)	2 (7)
General stressors	5 (16)	6 (19)	6 (22)	8 (28)
Other	2 (6.5)	2 (6)	0	2 (7)
Related to child + General	8 (26)	11 (34)	11 (41)	9 (31)
Related to child + Other	4 (13)	0	1 (4)	3 (10)
General + Other	1 (3)	0	2 (7)	0
Related to child, General and Other	2 (6.5)	5 (16)	0	5 (17)
Shared protocol with *another participants*				
Yes *	2	0	1	0
No	29	32	26	29
Identity of participants shared with *	Spouse (2)	-	NA	-
Did another person join?				
Yes	6	3	1	3
No	25	29	26	26
Who joined?				
Spouse/partner	1	1	-	2
Other children	2	1	-	-
Relative	2	-	-	-
Non-relative	0	1	-	1
No response	1	-	1	-

* Responses might be a mistake, since participants indicated the protocols were shared with spouses (non-participants).

Table 11

Post-Intervention (T2) and Follow-Up (T3) Subjective Reports, Continuous Variables

	T2						T3					
	TFT *n* = 31		Control *n* = 32				TFT *n* = 27		Control *n* = 29			
variable	***M***	***SD***	***M***	***SD***	***W***	***p***	***M***	***SD***	***M***	***SD***	***W***	***p***
Did the intervention help? (1=not at all; 7=very)												
	4.23	1.56	3.84	1.35	425	*.314*	4.15	1.90	4.34	1.67	420	*.63*
Number of times video was watched												
	3.87	6.14	1.69	2.32	383.5	*.113**	4.78	12.58	1.03	2.32	316	0.15*

*After removing extremes, still n.s.

Table 12

Reliability (Cronbach's Alpha Coefficient for Internal Consistency) of the PSS and PSI Stress Measures, and the IRI Empathy Scales at all Times (T1, T2 and T3)

	T1 (n = 63)			***T2 (n = 63)***			***T3 (n = 56)***		
Measurement tool	***M***	***SD***	***α***	***M***	***SD***	***α***	***M***	***SD***	***α***
PSS	2.3	0.58	.85	2.0	0.62	.89	1.8	0.46	.80
PSI–Total	3.2	0.60	.91	3.0	0.56	.91	3.0	0.53	.91
PSI–Personal Distress (PD)	3.2	0.65	.80	3.1	0.65	.85	2.9	0.58	.79
PSI–Parent Child Dysfunctional Interaction (PCDI)	2.8	0.72	.82	2.7	0.65	.80	2.7	0.64	.82
PSI–Difficult Child (DC)	3.5	0.78	.87	3.4	0.76	.88	3.4	0.73	.86
IRI–Perspective Taking (PT)	2.8	0.65	.76	2.9	0.68	.83	2.8	0.69	.83
IRI – Fantasy Scale (FS)	2.5	0.86	.82	2.5	0.85	.86	2.4	0.95	.87
IRI – Empathic Concern (EC)	3.1	0.63	.71	3.0	0.67	.80	3.1	0.58	.71
IRI–Personal Distress (PD)	1.9	0.82	.81	1.8	0.80	.81	1.7	0.80	.82

Table 13

Reliability (Cronbach's Alpha Coefficient for Internal Consistency) of the BAPQ at Baseline (T1)

	T1 (n = 61)		
Measurement tool	***M***	***SD***	***α***
BAPQ – Full scale	2.86	0.60	.90
BAPQ – Aloof	3.05	0.89	.87
BAPQ – Rigidity	3.08	0.74	.82
BAPQ – Pragmatic Language	2.45	0.73	.83

Hypothesis 1: The Effects of the Intervention Condition on Stress at T2

Table 14

Robust Multiple Regression Predicting Scores on the Perceived Stress Scale (PSS) at Time 2 (T2)

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Predictors			***B(SE)*** ***p-value***		
PSS score T1	0.63 (0.11) ***p* < .001**	0.63 (0.11) ***p* < .001**	0.63 (0.11) ***p* < .001**	0.63 (0.12) ***p* < .001**	0.62 (0.11) ***p* < .001**
Condition (Control=0; TFT=1)	-2.98 (1.21) **.017**	-3.01 (1.24) **.018**	-2.88 (1.20) **.019**	-2.86 (1.21) **.02**	-1.55 (2.72) .57
Nationality (Israel=0, USA=1)	-	-0.44 (1.26) .72	-1.05 (1.60) .51	-0.93 (1.67) .57	-
Mental Health diagnosis (Yes=0, No=1)	-	-	-1.17 (1.95) .55	-1.01 (2.00) .61	0.27 (1.7) 0.87
Total Practice	-	-	-	-0.01 (0.05) .79	-
Interaction: Condition * Mental Health	-	-	-	-	-1.79 (3.04) .55
Adjusted R^2	0.394	0.385	0.38	0.364	0.378

Models 1,2,3,4 are not significantly different. Robust Wald Test conducted, all p >.78

Table 15

Linear Multiple Regression Predicting Scores on the Parent Stress Index (PSI)-Total Scale at Time 2 (T2)

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 1	PSI Total score T1	0.79 (0.06)	12.15	**< .001**	0.70	$F(2,60) = 75.14$ $p < .001$
	Condition (Control=0, TFT=1)	-1.93 (2.78)	-0.69	.49		
Model 2	PSI Total score T1	0.78 (0.06)	11.95	**< .001**	0.70	$F(3,59) = 49.44$ $p < .001$
	Condition (Control=0, TFT=1)	-1.88 (2.80)	-0.60	.55		
	Nationality (Israel=0, USA=1)	1.11 (2.83)	0.40	.70		
Model 3	PSI Total score T1	0.78 (0.06)	11.63	**< .001**	0.69	$F(4, 58) = 36.56$ $p < .001$
	Condition (Control=0, TFT=1)	-1.72 (2.83)	-0.59	.55		
	Nationality (Israel=0, USA=1)	0.35 (3.57)	0.1	.92		
	Mental Health diagnosis (Yes=0, No=1)	-1.45 (4.11)	-0.35	.72		
Model 4	PSI Total score T1	0.78 (0.06)	11.51	**< .001**	0.691	$F(5, 57)= 28.81$ $p < .001$
	Condition (Control=0, TFT=1)	-1.76 (2.89)	-0.61	.54		
	Nationality (Israel=0, USA=1)	0.03 (3.75)	0.009	.99		
	Mental Health diagnosis (Yes=0, No=1)	-1.82 (4.37)	-0.42	.67		
	Total Practice	0.04 (0.13)	0.30	.76		
Model 5	PSI Total score T1	0.78 (0.06)	11.58	**< .001**	0.696	$F(4,58) = 36.56$ $p <.001$
	Condition (Control=0, TFT=1)	-1.53 (5.67)	-0.27	.78		
	Mental Health diagnosis (Yes=0, No=1)	-1.61 (4.18)	-0.38	.70		
	Interaction: TFT* Mental Health	-0.22 (6.58)	-0.034	.97		

Table 16

Linear Multiple Regression Predicting Scores on the Parent Stress Index – Parent-Child Dysfunctional Interaction (PSI-PCDI) Scale at Time 2 (T2)

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 1	PSI-PCDI score T1	0.70 (0.07)	9.884	< **.001**	0.615	$F(2,60) = 50.58$ $p < .001$
	Condition (Control=0, TFT=1)	-1.42 (1.22)	-1.157	.25		
Model 2	PSI-PCDI score T1	0.70 (0.07)	9.54	< **.001**	0.615	$F(3,59) = 34.03$ $p < .001$
	Condition (Control=0, TFT=1)	-1.37 (1.23)	-1.12	.26		
	Nationality (Israel=0, USA=1)	1.23 (1.25)	0.98	.33		
Model 3	PSI-PCDI score T1	0.67 (0.07)	9.21	< **.001**	0.616	$F(4,58) = 25.92$ $p < .001$
	Condition (Control=0, TFT=1)	-1.14 (1.24)	-0.92	.36		
	Nationality (Israel=0, USA=1)	0.22 (1.55)	0.14	.88		
	Mental Health diagnosis (Yes=0, No=1)	-1.97 (1.79)	-1.10	.27		
Model 4	PSI-PCDI score T1	0.68 (0.07)	9.21	< **.001**	0.613	$F(5, 57) = 20.71$ $p < .001$
	Condition (Control=0, TFT=1)	-1.20 (1.24)	-0.96	.34		
	Nationality (Israel=0, USA=1)	-0.13 (1.62)	-0.08	.93		
	Mental Health diagnosis (Yes=0, No=1)	-2.37 (1.88)	-1.27	.21		
	Total Practice	0.04 (0.05)	0.77	.44		
Model 5	PSI-PCDI score T1	0.68 (0.07)	9.19	< **.001**	0.617	$F(4,58) = 25.96$ $p < .001$
	Condition (Control=0, TFT=1)	-1.71 (2.46)	-0.69	.49		
	Mental Health diagnosis (Yes=0, No=1)	-2.42 (1.81)	-1.33	.18		
	Interaction: TFT* Mental Health	0.78 (2.86)	0.27	.78		

Table 17

Linear Multiple Regression Predicting Scores on the Parent Stress Index-Difficult Child (PSI-DC) Scale at Time 2 (T2)

	Predictor	*B (SE)*	*t*	*p*	***Model Fit*** **Adjusted R^2**	***Model F***
Model 1	PSI-DC score T1	0.83 (0.06)	12.64	< **.001**	0.718	$F(2,60) = 79.99$ $p < .001$
	Condition (Control=0, TFT=1)	1.01 (1.23)	0.823	.41		
Model 2	PSI-DC score T1	0.83 (0.06)	12.54	< **.001**	0.713	$F(3,59) = 52.44$ $p < .001$
	Condition (Control=0, TFT=1)	1.011 (1.24)	0.81	.42		
	Nationality (Israel=0, USA=1)	0.02 (1.24)	-0.02	.98		
Model 3	PSI-DC score T1	0.84 (0.07)	12.19	< **.001**	0.709	$F(4, 58)= 38.78$ $p < .001$
	Condition (Control=0, TFT=1)	0.94 (1.27)	0.74	.46		
	Nationality (Israel=0, USA=1)	0.33 (1.60)	0.20	.83		
	Mental Health diagnosis (Yes=0, No=1)	0.65 (1.84)	0.35	.72		
Model 4	PSI-DC score T1	0.83 (0.07)	11.82	< **.001**	0.707	$F(5,57) = 30.94$ $p < .001$
	Condition (Control=0, TFT=1)	0.99 (1.27)	0.77	.44		
	Nationality (Israel=0, USA=1)	0.66 (1.66)	0.39	.69		
	Mental Health diagnosis (Yes=0, No=1)	1.03 (1.91)	0.54	.59		
	Total Practice	-0.04 (0.06)	-0.78	.43		
Model 5	PSI-DC score T1	0.83 (0.06)	12.33	< **.001**	0.709	$F(4,58) = 38.87$ $p < .001$
	Condition (Control=0, TFT=1)	1.77 (2.51)	0.70	.48		
	Mental Health diagnosis (Yes=0, No=1)	0.86 (1.86)	0.46	.64		
	Interaction: Condition* Mental Health	-1.10 (2.90)	-0.38	.70		

Table 18

Robust Multiple Regression Predicting Scores on the Parent Stress Index-Personal Distress (PSI-PD) Scale at Time 2 (T2)

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Predictors			***B(SE)*** ***p-value***		
PSI-PD score T1	0.69 (0.08) **< .001**	0.69 (0.08) **< .001**	0.69 (0.08) **< .001**	0.68 (0.07) **< .001**	0.68 (0.07) **< .001**
Condition (Control=0; TFT=1)	-1.21 (1.43) .40	-1.17 (1.46) .43	-1.22 (1.47) .41	-1.26 (1.44) .48	0.46 (3.39) .89
Nationality (Israel=0, USA=1)	-	0.41 (1.48) .78	0.62 (2.21) .78	0.23 (2.18) .91	-
Mental Health diagnosis (Yes=0, No=1)	-	-	0.36 (2.52) .88	-0.05 (2.43) .98	0.69 (1.84) .70
Total Practice	-	-	-	0.05 (0.05) .27	-
Interaction: Condition * Mental Health	-	-	-	-	-2.19 (3.82) .56
Adjusted R^2	0.498	0.49	0.47	0.48	0.48

Hypothesis 2(a): The Effects of the Intervention Condition on Stress at T3-Group Comparison

Table 19

Robust Multiple Regression Predicting Scores on the Perceived Stress Scale (PSS) at Time 3 (T3)

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Predictors			***B(SE)*** ***p-value***			
PSS score T2	0.51 (0.06) **< .001**	0.51 (0.06) **< .001**	0.51 (0.06) **< .001**	0.50 (0.06) **< .001**	0.51 (0.06) **< .001**	0.51 (0.06) **< .001**
Condition (Control=0; TFT=1)	1.06 (0.99) .29	0.82 (1.01) .42	0.82 (0.99) .41	0.86 (0.97) .38	1.67 (1.40) .23	-0.15 (2.36) .94
Nationality (Israel=0, USA=1)	-	-1.16 (0.98) .24	-0.72 (0.99) .47	-0.64 (0.97) .51	-	-
Mental Health diagnosis (Yes=0, No=1)	-	-	0.89 (1.37) .52	0.91 (1.29) .48	-	0.82 (1.66) .62
Total Practice	-	-	-	-0.01 (0.02) .57	-0.00 (0.04) .99	-
Interaction: Condition *Total practice	-	-	-	-	-0.02 (0.05) .62	-
Interaction: Condition* Mental Health	-	-	-	-	-	1.34 (2.54) .59
Adjusted R^2	0.46	0.473	0.478	0.469	0.496	0.475

Table 20

Robust Multiple Regression Predicting Scores on the Parent Stress Index-Total Scale (PSI-Total) at Time 3 (T3)

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Predictors				***B(SE)*** ***p-value***		
PSI-Total score T2	0.89 (0.06) **< .001**	0.88 (0.06) **< .001**	0.85 (0.08) **< .001**	0.86 (0.08) **< .001**	0.89 (0.05) **< .001**	0.84 (0.1) **< .001**
Condition (Control=0; TFT=1)	1.66 (2.35) .48	1.98 (2.38) .41	2.75 (2.85) .34	2.5 (2.50) .36	3.99 (3.08) .20	5.38 (6.70) .42
Nationality (Israel=0, USA=1)	-	2.05 (2.32) .38	-0.19 (3.48) .95	-0.21 (3.58) .95	-	-
Mental Health diagnosis (Yes=0, No=1)	-		-4.60 (5.23) .38	-4.33 (4.84) .37	-	-3.73 (4.03) .36
Total Practice	-		-	0.015 (0.05) .76	0.07 (0.05) .23	-
Interaction: Condition *Total practice	-		-	-	-0.09 (0.07) .19	-
Interaction: Condition* Mental Health	-		-	-	-	-3.19 (6.62) .63
Adjusted R^2	0.815	0.813	0.805	0.808	0.819	0.800

Table 21

Robust Multiple Regression Predicting Scores on the Parent Stress Index-Parenting Stress, Personal Distress (PSI-PD) Scale at Time 3 (T3)

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
				B(SE) ***p-value***		
PSI-PD score T2	0.72 (0.07) **< .001**	0.72 (0.07) **< .001**	0.71 (0.08) **< .001**	0.71 (0.08) **< .001**	0.72 (0.07) **< .001**	0.71 (0.08) **< .001**
Condition (Control=0; TFT=1)	0.26 (1.16) .82	0.39 (1.07) .71	0.75 (1.22) .54	0.54 (1.12) .63	0.10 (1.56) .94	0.55 (1.74) .75
Nationality (Israel=0, USA=1)	-	1.57 (1.19) .19	-0.04 (2.82) .98	0.43 (3.00) .88	-	-
Mental Health diagnosis (Yes=0, No=1)	-	-	-2.29 (3.00) .45	-1.8 (3.06) .56	-	-2.43 (1.53) .11
Total Practice	-	-	-	0.03 (0.02) .23	0.03 (0.03) .32	-
Interaction: Condition *Total practice	-	-	-		0.003 (0.05) .94	-
Interaction: Condition* Mental Health	-	-	-	-	-	0.34 (2.32) .88
Adjusted R^2	0.654	0.691	0.663	0.702	0.67	0.655

Table 22

Linear Multiple Regression Predicting Scores on the Parent Stress Index-Parent Child Dysfunctional Interaction (PSI-PCDI) Scale at Time 3 (T3)

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 1	PSI-PCDI score T2	0.78 (0.08)	8.92	< **.001**	0.586	$F(2,53) = 39.96$ $p < .001$
	Condition (Control=0, TFT=1)	2.76 (1.33)	2.06	**.044**		
Model 2	PSI-PCDI score T2	0.75 (0.09)	8.32	< **.001**	0.585	$F(3,52) = 26.87$ $p < .001$
	Condition (Control=0, TFT=1)	2.89 (1.34)	2.15	**.036**		
	Nationality (Israel=0, USA=1)	1.30 (1.39)	0.93	.353		
Model 3	PSI-PCDI score T2	0.72 (0.09)	7.76	< **.001**	0.59	$F(4, 51) = 20.84$ $p < .001$
	Condition (Control=0, TFT=1)	3.12 (1.35)	2.31	**.025**		
	Nationality (Israel=0, USA=1)	0.04 (1.69)	0.026	.98		
	Mental Health diagnosis (Yes=0, No=1)	-2.53 (1.95)	-1.29	.20		
Model 4	PSI-PCDI score T2	0.72 (0.09)	7.69	< **.001**	0.584	$F(5,50) = 16.49$ $p < .001$
	Condition (Control=0, TFT=1)	3.15 (1.36)	2.32	**.024**		
	Nationality (Israel=0, USA=1)	0.17 (1.72)	0.10	.92		
	Mental Health diagnosis (Yes=0, No=1)	-2.40 (1.97)	-1.21	.22		
	Total Practice	-0.01 (0.02)	-0.52	.60		
Model 5	PSI-PCDI score T2	0.77 (0.09)	8.76	< **.001**	0.580	$F(4,51)= 20.01$ $p < .001$
	Condition (Control=0, TFT=1)	3.95 (1.81)	2.18	**.033**		
	Total Practice	0.008 (0.03)	0.24	.80		
	Interaction: Condition *Total practice	-0.04 (0.05)	-0.95	.34		
Model 6	PSI-PCDI score T2	0.70 (0.09)	7.73	< **.001**	0.609	$F(4,51)= 22.46$ $p < .001$
	Condition (Control=0, TFT=1)	6.61 (2.58)	2.58	**.013**		
	Mental Health diagnosis (Yes=0, No=1)	-0.89 (1.88)	-0.47	.64		
	Interaction: Condition* Mental Health	-4.73 (3.02)	-1.56	.12		

*Models are not significantly different, p >.20

Table 23

Linear Multiple Regression Predicting Scores on the Parent Stress Index-Difficult Child (PSI-DC) Scale at T3

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 1	PSI-DC score T2	0.82 (0.06)	13.54	< **.001**	0.769	$F(2,53) = 92.67$ $p < .001$
	Condition (Control=0, TFT=1)	-1.37 (1.12)	-1.22	.23		
Model 2	PSI-DC score T2	0.82 (0.05)	14.51	< **.001**	0.801*	$F(3, 52) = 74.81$ $p < .001$
	Condition (Control=0, TFT=1)	-0.89 (1.05)	-0.84	.40		
	Nationality (Israel=0, USA=1)	3.27 (1.06)	3.077	**.003**		
Model 3	PSI-DC score T2	0.79 (0.05)	15.13	< **.001**	0.832	$F(4, 51)= 69.18$ $p < .001$
	Condition (Control=0, TFT=1)	-0.38 (0.98)	0.39	.69		
	Nationality (Israel=0, USA=1)	0.77 (1.24)	0.62	.53		
	Mental Health diagnosis (Yes=0, No=1)	-4.55 (1.39)	-3.26	**.002**		
Model 4	PSI-DC score T2	0.78 (0.05)	14.51	< **.001**	0.833**	$F(5,50) = 55.97$ $p < .001$
	Condition (Control=0, TFT=1)	-0.31 (0.98)	-0.32	.75		
	Nationality (Israel=0, USA=1)	0.96 (1.24)	0.77	.44		
	Mental Health diagnosis (Yes=0, No=1)	-4.39 (1.39)	-3.14	**.002**		
	Total Practice	-0.02 (0.018)	-1.15	.25		
Model 5	PSI-DC score T2	0.81 (0.06)	12.75	< **.001**	0.764	$F(4,51) = 45.69$ $p < .001$
	Condition (Control=0, TFT=1)	-1.48 (1.54)	-0.95	.34		
	Total Practice	-0.02 (0.03)	-0.83	.40		
	Interaction: Condition *Total practice	0.007 (0.04)	0.17	.86		
Model 6	PSI-DC score T2	0.79 (0.05)	15.27	< **.001**	0.835	$F(4,51) = 70.72$ $p < .001$
	Condition (Control=0, TFT=1)	1.53 (1.92)	0.79	.42		
	Mental Health diagnosis (Yes=0, No=1)	-4.11 (1.37)	-3.00	**.004**		
	Interaction: Condition *Mental Health	-2.59 (2.22)	-1.16	.24		

*The model is significantly different, $p = .001$; **The model is significantly different, $p = .002$.

Hypothesis 2(b): The Effects of the Intervention Condition on Stress at T3-Comparison Within the TFT Group

Table 24

Correlations Between the Difference Scores of the Stress Measures between Time 2 and Time 3 (T2-T3) and "Total Practice," TFT Group

Difference score T2-T3	**Total Practice**	
	Kendall tau	***p***
PSS	.13	.53
PSI-Total	-.04	.85
PSI-PD	-.20	.31
PSI-PCDI	.02	.94
PSI-DC	-.05	.79

Hypothesis 3: The Effects of the Intervention Condition on Perspective Taking, at T2

Table 25

Robust Multiple Regression Predicting Perspective Taking (IRI-PT) Scores at Time 2 (T2)

	Model 1*	**Model 2***	**Model 3***	**Model 4***	**Model 5**
Predictor			***B(SE)*** ***p-value***		
IRI-PT score T1	0.93 (0.08) < **.001**	0.93 (0.08) < **.001**	0.93 (0.09) < **.001**	0.90 (0.10) < **.001**	0.92 (0.10) < **.001**
Condition (Control=0; TFT=1)	2.10 (0.83) **.014**	2.15 (0.83) **.012**	2.17 (0.82) **.011**	2.13 (0.79) **.009**	2.75 (1.38) **.05**
Nationality (Israel=0, USA=1)	-	0.94 (0.76) .22	0.16 (1.56) .91	0.53 (1.31) .68	-
Mental Health diagnosis (Yes=0, No=1)	-	-	-1.08 (1.58) .49	-0.67 (1.36) .62	-0.87 (0.94) .36
Total Practice	-	-	-	-0.03 (0.03) .37	-
Interaction: Condition* Mental Health	-	-	-	-	-0.71 (1.83) .69
Adjusted R^2	0.686	0.679	0.669	0.654	0.670

*Models are not significantly different, $p = .36$

Hypothesis 4: The Effects of the Intervention Condition on Perspective Taking, at T3: Group Comparison

Table 26

Linear Multiple Regression Predicting Perspective Taking Scores (IRI-PT) at Time 3 (T3)

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 1	IRI-PT score T2	0.84 (0.07)	11.94	< **.001**	0.719	$F(2,53) = 71.59$ $p < .001$
	Condition (Control=0, TFT=1)	-1.02 (0.69)	-1.48	.14		
Model 2	IRI-PT score T2	0.84 (0.07)	11.85	< **.001**	0.716	$F(3,52) = 47.23$ $p < .001$
	Condition (Control=0, TFT=1)	-0.96 (0.70)	-1.36	.17		
	Nationality (Israel=0, USA=1)	0.4 (0.69)	0.57	.57		
Model 3	IRI-PT score T2	0.84 (0.07)	11.57	< **.001**	0.710	$F(4, 51) = 34.74$ $p < .001$
	Condition (Control=0, TFT=1)	-0.97 (0.72)	-1.33	.18		
	Nationality (Israel=0, USA=1)	0.42 (0.9)	0.46	.64		
	Mental Health diagnosis (Yes=0, No=1)	0.03 (1.01)	0.03	.97		
Model 4	IRI-PT score T2	0.84 (0.07)	11.43	< **.001**	0.704	$F(5, 50) = 27.25$ $p < .001$
	Condition (Control=0, TFT=1)	-0.97 (0.73)	-1.32	.20		
	Nationality (Israel=0, USA=1)	0.40 (0.91)	0.44	.66		
	Mental Health diagnosis (Yes=0, No=1)	0.02 (1.03)	0.02	.98		
	Total Practice	0.00 (0.01)	0.078	.94		
Model 5	IRI-PT score T2	0.84 (0.07)	11.80	< **.001**	0.713	$F(4,51) = 35.16$ $p < .001$
	Condition (Control=0, TFT=1)	-1.58 (0.94)	-1.67	.10		
	Total Practice	-0.00 (0.01)	-0.51	.61		
	Interaction: Condition* Total Practice	0.02 (0.02)	0.87	.38		
Model 6	IRI-PT score T2	0.84 (0.07)	11.47	< **.001**	0.710	$F(4,51) = 34.67$ $p < .001$
	Condition (Control=0, TFT=1)	-0.50 (1.42)	-0.35	.72		
	Mental Health diagnosis (Yes=0, No=1)	-0.03 (0.99)	-0.31	.97		
	Interaction: Condition* Mental Health	-0.62 (1.63)	-0.38	.70		

Broad Autism Phenotype

Table 27

Presentation of BAP Characteristics, at Baseline (T1)

T1	**BAPQ category (*n* = 61) ***							
	BAPQ Full scale		**BAPQ Aloof**		**BAPQ Rigidity**		**BAPQ Pragmatic Language**	
BAP status	***n***	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Below Cutoff	46	75	49	80	47	77	48	79
Above Cutoff	15	25	12	20	14	23	13	21

* Cutoff scores as suggested by Sasson, Lam, et al. (2013).

Hypothesis 5: Comparing Stress and Empathy Scores by BAP Status

Table 28

One-Way ANOVA of Stress and Empathy Variables Comparing Participants Pre-Intervention (T1) by BAP Status

T1 ***n* = 61**	**BAP-AC n = 15**		**BAP-BC** ***n* = 46**			
Variable	***M***	***SD***	***M***	***SD***	***F(1, 59)***	***p***
PSS Total	26.27	4.42	21.78	5.94	7.21	**.009**
PSI Total	126.13	18.61	110.15	21.63	6.58	**.012**
PSI PD	42.2	6.94	37.46	7.9	4.30	**.042**
PSI PCDI	37.53	7.6	31.93	8.77	4.89	**.030**
PSI DC	40.76	9.7	46.4	7.76	4.17	**.045**
IRI PT	17.27	5.61	19.87	4.03	3.06	**.085***
IRI FS	18.6	5.44	17.37	6.17	0.47	.49
IRI EC	20.8	5.44	22.11	4.11	0.97	.33
IRI PD	14.33	5.77	12.65	5.69	0.98	.32

*****Marginally significant

Table 29

One-Way ANOVA of Stress and Empathy Variables Comparing Participants Post-Intervention (T2) by BAP Status

T2 ***n* = 61**	**BAP-AC** ***n* = 15**		**BAP-BC** ***n* = 46**			
Variable	***M***	***SD***	***M***	***SD***	***F(1,59)***	***p***
PSS Total	20.13	6.03	19.2	6.39	0.25	.62
PSI Total	121.6	18.85	105.74	19.76	7.44	**.008**
PSI PD	42.33	8.27	35.07	6.99	11.17	**.001**
PSI PCDI	35.6	6.93	30.61	7.81	4.86	**.031**
PSI DC	43.67	8.21	40.07	9.57	1.71	.19
IRI PT	17.53	5.45	20.74	4.37	4.84	**.031**
IRI FS	17.8	7.05	17.35	5.75	0.062	.80
IRI EC	19.4	4.24	21.5	4.82	$X^2(1, N = 61) = 2.49$	.11
IRI PD	13.47	4.88	12.28	5.9	0.49	.48

Table 30

One-Way ANOVA of Stress and Empathy Variables Comparing Participants at Follow-up (T3) by BAP Status

T3 ***n* = 54**	**BAP-AC** ***n* = 13**		**BAP-BC** ***n* = 41**			
Variables	***M***	***SD***	***M***	***SD***	***F(1,52)***	***p***
PSS Total	18.92	5.33	18.17	4.43	0.257	.61
PSI Total	119.85	13	103.68	18.51	7.651	**.007**
PSI PD	40.08	7.34	33.27	6.22	10.85	**.001**
PSI PCDI	35.92	6.53	30.44	7.68	5.372	**.024**
PSI DC	43.85	6.15	39.98	9.5	1.426	.237
IRI PT	16.46	4.88	20.41	4.5	7.475	**.008**
IRI FS	17	7.86	17.02	6.48	X^2 (1, N = 54) = 0.098	.75
IRI EC	20.92	4.39	21.44	4.12	0.134	.71
IRI PD	11.85	5.47	11.56	5.65	0.025	.87

Table 31

ANCOVA for the Effect on Perceived Stress Scores (PSS) and on Parent Stress Index-Difficult Child Scores (PSI-DC)

PSS			**PSI-DC**		
Time 2	***F*(1,56)**	***p***	**Time 2**	***F*(1,56)**	***p***
PSS (T1)	43.45	**< .001**	PSI-DC (T1)	152.41	**< .001**
BAP status	2.37	.19	BAP status	1.07	.30
Condition	5.76	**.02**	Condition	0.03	.85
Interaction: BAP status * Intervention	.25	.61	Interaction: BAP status* Intervention	.48	.49
Time 3	***F*(1,56)**	***p***	**Time 3**	***F*(1,56)**	***p***
PSS (T2)	2.95	**< .001**	PSI-DC (T2)	5.85	**< .001**
BAP status	1.35	.25	BAP status	0.012	.92
Condition	0.27	.60	Condition	1.46	.24
Interaction: BAP status * Intervention	.08	.77	Interaction: BAP status * Intervention	0.10	.74

Table 32

ANCOVA for the Effect on Perspective Taking (IRI-PT), at T2 and T3

Time 2	***F*(1,56)**	***p***
IRI-PT (T1)	49.83	< **.001**
BAP status	2.96	.09
Condition	0.98	.32
Interaction: BAP status * Intervention	1.90	.17
Time 3	***F*(1,56)**	***p***
IRI-PT (T2)	5.17	< **.001**
BAP status	0.18	.66
Condition	0.01	.90
Interaction: BAP status * Intervention	0.41	.52

Hypothesis 6: Comparing P-ASD BAP-C, on Cognitive and Affective Empathy

Table 33

Comparing of Parents Presenting with BAP Characteristics (BAP-AC), on Scores on Cognitive and Emotional Empathy Measures

	T1 (*n* = 15)			**T2 (*n* = 15)**			**T3 (*n* = 13)**		
Variable	***M***	***V***	***p***	***M***	***V***	***p***	***M***	***V***	***p***
Cognitive (IRI-PT+ IRI-FS)	35.87	73	.47	35.33	70	0.28	33.46	50	.78
Emotional (IRI-EC+ IRI-PD)	35.13			32.87			32.77		
Difference score: Cognitive-Emotional	0.74			2.46			0.69		

Exploratory Analyses

Characteristics of Participants that Discontinued Participation (T1)

Table 34

Presentation of BAP Characteristics at Baseline, for Participants Who Did Not Complete the Intervention

	BAPQ category, Discontinued Before Intervention (*n* = 13)							
	BAPQ Full scale		**BAPQ Aloof**		**BAPQ Rigidity**		**BAPQ Pragmatic Language**	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Below Clinical*	9	69	7	54	9	69	11	85
Above Clinical*	4	31	6	46	4	31	2	15

*Cutoffs suggested by Sasson, Lam, et al. (2013)

The Relationship Between BAP Characteristics and Perspective Taking Post-Intervention (T2)

Table 35

Mean and SD of BAPQ Characteristics, by BAP Status, at Baseline

	BAPQ Total		**Rigidity**		**Aloofness**		**Pragmatic Language**	
	BC (*n* = 47)	**AC (*n* = 16)**	**BC (*n* = 48)**	**AC (*n* = 15)**	**BC (*n* = 50)**	**AC (*n* = 13)**	**BC (*n* = 49)**	**AC (*n* = 14)**
Mean (SD)	20.72 (4.32)	17.75 (5.34)	20.19 (4.9)	19.27 (4.27)	20.24 (4.82)	18.92 (4.44)	20.2 (4.57)	19.14 (5.38)

BC = Below Cutoff; AC = Above Cutoff

Table 36

Linear Multiple Regression Predicting Perspective Taking Scores (IRI-PT) at Time 2 (T2), by BAP-Status and Characteristics

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 1	IRI-PT score T1	26.34 (3.66)	7.193	< **.001**	0.451	$F(2,60) = 26.48$ $p < .001$
	Rigidity (BC=0, AC=1)	-28.44 (38.68)	-0.735	.46		
Model 2	IRI-PT score T1	26.26 (3.69)	7.10	< **.001**	0.448	$F(2,60) = 26.18$ $p < .001$
	Aloofness (BC=0, AC=1)	-19.07 (41.09)	-0.46	.64		
Model 3	IRI-PT score T1	26.65 (3.72)	7.162	< **.001**	0.447	$F(2,60) = 26.05$ $p < .001$
	Pragmatic Language (BC=0, AC=1)	10.81 (40.25)	0.269	.79		
Model 4	IRI-PT score T1	26.45 (3.76)	7.03	< **.001**	0.44	$F(3,59) = 17.24$ $p < .001$
	Aloofness (BC=0, AC=1)	-21.82 (42.10)	-0.518	.60		
	Pragmatic Language (BC=0, AC=1)	14.71 (41.18)	0.357	.72		
Model 5	IRI-PT score T1	26.28 (3.72)	7.07	< **.001**	0.442	$F(3,59) = 17.37$ $p < .001$
	Aloofness (BC=0, AC=1)	-6.93 (46.25)	-0.15	.88		
	Rigidity (BC=0, AC=1)	-25.5 (43.65)	-0.584	.56		
Model 6	IRI-PT score T1	26.53 (3.74)	7.097	< **.001**	0.442	$F(3,59) = 17.42$ $p < .001$
	Rigidity (BC=0, AC=1)	-29.04 (39.03)	-0.745	.46		
	Pragmatic Language (BC=0, AC=1)	12.38 (40.45)	.306	.76		
Model 7	IRI-PT score T1	25.45 (3.72)	6.839	< **.001**	0.4	$F(2,60) = 27.38$ $p < .001$
	BAPQ Total (BC=0, AC=1)	-47.14 (38.47)	-1.22	.22		
Model 8	IRI-PT score T1	26.10 (3.65)	7.13	< **.001**	0.454	$F(3,59) = 18.21$ $p < .001$
	Rigidity (BC=0, AC=1)	-28.39 (38.56)	-0.736	.46		
	MH diagnosis (Yes=0, No=1)	-43.07 (37.01)	-1.16	.25		
Model 9	IRI-PT score T1	26.10 (3.69)	7.06	< **.001**	0.45	$F(3,59) = 17.93$ $p < .001$
	Aloofness (BC=0, AC=1)	-13.23 (41.35)	-0.32	.75		
	MH diagnosis (Yes=0, No=1)	-41.54 (37.45)	-1.11	.27		

Table 36 – Cont'd

	Predictor	*B (SE)*	*t*	*p*	Model Fit Adjusted R^2	Model F
Model 10	IRI-PT score T1	26.11 (3.740)	6.98	< **.001**	0.45	$F(3,59) = 17.89$ $p < .001$
	Pragmatic Language (BC=0, AC=1)	-7.87 (43.35)	-0.18	.85		
	MH diagnosis (Yes=0, No=1)	-45.82 (40.14)	-1.14	.26		
Model 11	IRI-PT score T1	26.03 (3.78)	6.89	< **.001**	0.44	$F(4,58) = 13.22$ $p < .001$
	Aloofness (BC=0, AC=1)	-12.11 (43.08)	-0.281	.78		
	Pragmatic Language (BC=0, AC=1)	-4.68 (45.14)	-0.104	.91		
	MH diagnosis (Yes=0, No=1)	-43.30 (41.43)	-1.045	.30		
Model 12	IRI-PT score T1	26.11 (3.71)	7.036	< **.001**	0.445	$F(4,58) = 13.43$ $p < .001$
	Aloofness (BC=0, AC=1)	0.632 (46.60)	0.014	.99		
	Rigidity (BC=0, AC=1)	-28.66 (43.63)	-0.657	.51		
	MH diagnosis (Yes=0, No=1)	-43.10 (37.71)	-1.143	.25		
Model 13	IRI-PT score T1	26.00 (3.75)	6.92	< **.001**	0.445	$F(4,58) = 13.43$ $p < .001$
	Rigidity (BC=0, AC=1)	-28.08 (38.95)	-0.721	.47		
	Pragmatic Language (BC=0, AC=1)	-6.08 (43.60)	-0.14	.89		
	MH diagnosis (Yes=0, No=1)	-45.16 (40.32)	-1.10	.26		
Model 14	IRI-PT score T1	25.24 (3.72)	6.79	< **.001**	.46	$F(3,59) = 18.8$ $p < .001$
	BAPQ Total (BC=0, AC=1)	46.52 (38.37)	1.213	.23		
	MH diagnosis (Yes=0, No=1)	-42.45 (36.73)	-1.156	.25		

BC= Below cutoff; AC = Above Cutoff

Empathy Scales (IRI-FS, IRI-EC, IRI-DC)

Table 37

Mean and SD of Empathy Measures: Fantasy Scale (IRI-FS), Empathic Concern (IRI-EC) and Personal Distress (IRI-PD) by Condition, at Time 1 (T1) and Time 2 (T2)

	TFT-intervention *n* = 31; 18 ISR, 13 USA				**Control-stimulation *n* = 32; 17 ISR, 15 USA**			
	T1		**T2**		**T1**		**T2**	
Variables	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
IRI-FS	17.45	6.62	17	6.46	17.44	5.47	17.69	5.54
IRI-EC	22.61	3.66	21.74	3.57	21.22	5.05	20.44	5.56
IRI-PD	13.13	6.15	12.9	5.9	13.25	5.44	12.41	5.38

Table 38

Mean and SD of Empathy Measures: Fantasy Scale (IRI-FS), Empathic Concern (IRI-EC) and Personal Distress (IRI-PD) by Condition, at Time 2 (T2) and Time 3 (T3)

	TFT-intervention *n* = 27; *n* = 17 ISR, 10 USA				**Control-stimulation *n* = 29; *n* = 14 ISR, 15 USA**			
	T2		**T3**		**T2**		**T3**	
Variables	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
IRI-FS	17.15	6.68	15.96	7.2	17.83	5.74	17.76	6.17
IRI-EC	22.07	3.44	21.41	3.93	20.69	5.76	21.31	4.29
IRI-PD	13.19	5.71	12.63	5.28	12.07	5.52	10.83	5.78

Appendices

Appendix A

PSI/SF-3e (Parenting Stress Index, Short Form, 3rd edition)

Please think of your child with ASD when completing this questionnaire. If you have more than one child with ASD, please think of the child that causes you most stress.

SA=Strongly Agree A = Agree NS = Not Sure D = Disagree SD = Strongly Disagree

	SA	A	NS	D	SD
I feel trapped by my responsibilities as a parent					
Sometimes I feel my child doesn't like me and doesn't want to be close to me					
My child generally wakes up in a bad mood					

Appendix B

מדד סטרס הורי (PSI/SF-3e)

כעת אציג בפנייך 36 הצהרות. בנוגע לכל אחד מהם אבקש שתתייחס לילד/ך (שנבחרו כמוקד במחקר זה) ותאמר/י לי האם את/ה: 5=מסכים/ה בהחלט, 4=מסכים/ה, 3=לא בטוח/ה, 2=לא מסכים/ה, או 1= מאוד לא מסכים/ה עם ההצהרה. התגובה הראשונית שלך לכל הצהרה צריכה להיות התשובה המסומנת. ייתכן שלא תהיה תשובה אשר מתארת את הרגשתך במדויק, במקרה כזה אבקש שתסמן/ני את התשובה הקרובה ביותר לתאר את הרגשתך.

פריטים לדוגמה:

	1	2	3	4	5
אני מרגיש לכוד בשל האחריות שלי כהורה					
לפעמים אני מרגיש שילדי לא מחבב אותי ואינו רוצה להיות קרוב אלי					
ילדי בדרך כלל מתעורר במצב רוח רע					

Appendix C

Demographics and Personal Information Questionnaire

(Translation of the Hebrew version, and adaptations to the version for USA)

Your information:

1. Gender: Male / Female / other / Do not want to answer
2. Year born
3. I am the biological / non-biological parent of this child
4. Personal status (mark all that apply): single, married, divorced, widowed, in a committed relationship, not in a committed relationship, other, do not want to answer
5. Number of years of education (academic and professional studies) (8, 12, 15, 17, 18+, other)
6. Income: According to the Israeli Central Bureau of Statistics, the average monthly gross household income in 2017 was 20,027 NIS, which is 16,518 NIS after taxes. My income is: much above average, about average, much lower than the average, Do not want to answer.
7. Work status: unemployed seeking work, employed full time, employed part-time, homemaker, other (please specify), don't want to answer
8. I am: Jewish, Muslim, Christian, Druze, Other (please specify), do not want to answer
9. I define myself as: Secular, I follow traditions ("Masorty"), religious, Ultra-orthodox, other, do not want to answer (please specify)
10. Area of residence: Northern Israel, Central Israel, Southern Israel, Jerusalem area (please specify)
11. Main language spoken at home: Hebrew, Arabic, Russian, Amharic, English, Other (please specify)
12. Health status: poor, good, excellent (please specify)
13. Have you ever received a formal mental health diagnosis of ASD for yourself? Yes/no
14. Have you ever received a formal mental health diagnosis, but currently do not have that diagnosis any longer? (for example, depression, anxiety) yes/no
15. Are you currently diagnosed with a mental health diagnosis (other than ASD)? (for example, depression, bipolar disorder) yes/no
    a. If yes, are you receiving therapy for YOUR mental health condition? Yes/no
16. I take prescribed medications regularly for treatment of: Physical conditions / Mental health conditions/ I don't take any medications (check all that apply)
17. How many children do you have (biological and non-biological)? (1,2,3,4,5,6,7+)
18. Age of your oldest child (X years and Y months)
19. Age of your youngest child (X years and Y months)
20. How many of your children are diagnosed with ASD? (1,2,3,4+)
21. How many children have another (non-ASD) diagnosis or have other medical, mental, emotional, developmental, or educational challenges? In your answer please include all children except your child with ASD which you will be thinking about for the purpose of this study. You will be asked about additional diagnosis or conditions of your child with ASD in another question. (0=none of my other kids has a diagnosis as described, or X (number of children with a diagnosis).
22. Is your partner or another household member also participating in this study (Yes/No/ I don't know)
23. Are you receiving support for:
    a. Basic needs (food security, house security, social security) Yes/No. If yes, who provides the

support (mark all that apply): spouse/partner; family; friends; religious leader, city or government agency, other organizations/donations, other, Do not want to answer

b. Parent education/parent coaching. Yes/No. If yes, who provides the support (mark all that are relevant): spouse/partner; family; friends; mental health professionals; religious leader, city or government agency, other organizations/donations, other, don't want to answer

24. Are you generally satisfied with the support you are receiving for the above issues? (yes/no).
25. Are you generally happy with the social support you receive? Yes/no

Child information. The following questions are about your child diagnosed with ASD. If you have more than one child with ASD, please choose the child aged 12 and under that causes you most stress.

Answer the questions as they relate to him or her.

1. Child's age (XX years and YY months old)
2. Sex: male, female
3. Order of child in the family (1 = oldest, 2, 3, 4, 5, 6, 7, 8 or higher)
4. My satisfaction from my relationship with this child is: (1 = very high, 2 = high; 3 = neutral (not bad, but can improve); 4 = low; 5 = very low; 6= Do not wish to answer)
5. Child's age at diagnosis: XX years, YY months
6. Does the child have any other diagnosed conditions (ADHD, learning disorders….)? Yes/No/Do not wish to answer. If yes, you can include information about your child's additional diagnosis (optional response).
7. I feel that my child's symptoms are: [1 = very severe 2 = severe 3 = neutral (not severe but not easy) 4 = not severe 5 = not at all severe (my child is easy) 6 = Do not wish to answer]
8. My child lives: home with me, home with the other parent, home with another family member, institution/other
9. Who is the primary caregiver of the child? Me, Me and others (such as your partner or another family member), another person which is not a family member
10. Educational setting during routine times. If your child is home due to the Coronavirus pandemic (COVID-19), please select that option in addition to your child's regular setting: [regular classroom or daycare, special classroom only in a regular school, mainstreamed in a regular school (part time in a regular classroom and part time in a special classroom); special classroom in a special school or preschool, homeschooled or cared for at home, currently at home due to COVID-19 (Coronavirus)]
11. You may share with me something about your child that makes you happy or proud (optional).

Changes to the Demographic questionnaire for participants in the US group. Words marked in *italics* identify changes from the version in Hebrew. Question 25 was added to the questionnaire to collect ethnicity information.

Your information:

6. Income: *According to the US Census Bureau, the median household income in 2018 was $61, 937.* Your income is: Much above $61,937, about $61,937, much lower than $61,937, Do not want to answer. (This question substituted the question regarding the average income in Israel)

8. I am: Jewish, Muslim, Christian, *Buddhist*, Other (please specify), do not want to answer (instead of "Druze")

9. Religiosity: How religious are you? *Not at all religious, somewhat religious, religious, very religious*, other, do not want to answer (first 4 categories were included instead of the four common religiosity affiliations of people in Israel)

10. *State* (drop down menu of US States) (instead of "area of residence in Israel")

11. Main language spoken at home: (English / other [please specify])

25. *How would you best describe yourself? American Indian or Alaska Native; Asian/Asian American; Black or African American; Native Hawaiian or Other Pacific Islander; White/Caucasian; Other; Prefer not to answer"*

Appendix D

שאלון הכרות, משתנים דמוגרפיים

מידע עליך:

1. מין: זכר / נקבה / אחר / לא מעונין/ת לענות
2. שנת לידה:
3. אני ההורה הביולוגי /לא הורה ביולוגי של הילד/ה
4. מעמד אישי (ניתן לענות יותר מאחד): רווק/ה, נשוי/נשואה, גרוש/ה, אלמן/ה, בקשר מחייב (לא נשואין), לא בקשר מחייב, אחר, לא מעונין/ת לענות
5. מספר שנות לימוד (לימודים אקדמיים ומקצועיים) (8, 12, 15, 17, 18+, אחר)
6. הכנסה: על פי נתוני הלשכה המרכזית לסטטיסטיקה, ההכנסה הממוצעת למשק בית (ברוטו) בשנת 2017 היתה 20,027 ש״ח, הכנסה נטו- 16,518 ש״ח לאחר מיסים. ההכנסה שלי: גבוהה בהרבה מעל לממוצע, בערך בממוצע, נמוכה בהרבה מהממוצע, לא מעונין/מעונינת לענות
7. מצב תעסוקתי: לא עובד/ת אך מחפש/ת עבודה, משרה מלאה, משרה חלקית, מטפל/ת בבית, אחר (נא לפרט _____), לא מעונינ/ת לענות.
8. אני: יהודי/ה, מוסלמי/ת, נוצרי/ה, דרוזי/ת, אחר, לא מעונין/ת לענות
9. מידת הדתיות שלי: חילוני/ת, מסורתי/ת, דתי/ת, חרדי/ת, לא מעונין/ת לענות
10. אזור מגורים- צפון ישראל, מרכז ישראל, דרום ישראל, אזור ירושלים.
11. שפת הדיבור העיקרית בבית: עברית, ערבית, רוסית, אמהרית, אנגלית, אחר
12. מצבך הבריאותי הכללי–לא טוב, טוב, מצוין
13. האם אובחנת בעצמך עם אוטיזם או הפרעה על רצף האוטיזם? כן / לא
14. האם אובחנת בעבר באבחנה פסיכיאטרית, אך זו כבר אינה רלבנטית (למשל דכאון, חרדה)? כן/לא
15. האם את/ה מאובחן/ת עכשיו עם הפרעה פסיכיאטרית כלשהי (שאיננה אוטיזם), לדוגמא הפרעה דו-קוטבית, דכאון? כן/לא (א) אם כן, האם אתה מקבל טיפול עבור מצבך הנפשי/פסיכיאטרי? כן/לא
16. אני נוטל תרופות מרשם בקביעות לטיפול ב: מצב פיזי, מצב נפשי, אינני לוקח תרופות (ניתן לסמן יותר מתשובה אחת).
17. כמה ילדים יש לך (ביולוגים ולא ביולוגים) (1,2,3,4,5,6, 7+)
18. גיל הילד/ה המבוגר/ת (**X** שנים, ו- **Y** חודשים)
19. גיל הילד/ה הצעיר/ה (**X** שנים, ו- **Y** חודשים)
20. כמה מילדיך מאובחנים עם אוטיזם/הפרעה על הרצף האוטיסטי? (1,2,3,4+)
21. לכמה מילדיך הנוספים יש אבחנה פסיכיאטרית אחרת (שאיננה אוטיזם/הפרעה על הרצף האוטיסטי), או מאובחנים כבעלי קשיים בתחום רפואי, רגשי, נפשי, התפתחותי או לימודי? במתן התשובה יש לכלול את כל הילדים **פרט** לילד או הילדה עם אוטיזם/הפרעה על רצף האוטיזם בהם תתמקדו במחקר זה. על אבחנות נוספות של הילד או הילדה עם אוטיזם/הפרעה על רצף האוטיזם תשאלו בהמשך.

0= ילדי הנוספים אינם בעלי קשיים כפי שמופיע בשאלה או _____ (תשובה מספרית)

22. האם בן/בת הזוג שלך או אדם אחר הגר עמך בבית גם משתתף במחקר זה? (כן, לא, לא ידוע)

23. האם את/ה מקבל/ת סיוע עבור:

א. צרכים בסיסיים (לדוגמה: מזון, עזרה בדיור, ביטוח לאומי) כן/לא אם כן, מי מספק את העזרה (סמנו את כל מה שרלבנטי): בן/בת זוג, משפחה, חברים, רב/מנהיג/ה דתי, עיריה או גוף ממשלתי, ארגונים חברתיים/תורמים, אחר, לא מעונין/ת לענות

ב. הדרכת הורים כן/לא. אם כן, מי מספק את העזרה (סמנו את כל מה שרלבנטי): בן/בת הזוג, משפחה, חברים, אנשי מקצוע, רב/מנהיג/ה דתי, עיריה או גוף ממשלתי אחר, ארגונים חברתיים/תורמים, אחר, לא מעונין/ת לענות

24. באופן כללי, האם את/ה מרוצה מהתמיכה שאת/ה מקבל/ת לנושאים שצינת בשאלות הקודמות? כן / לא

25. האם את/ה מרוצה מהתמיכה החברתית שיש לך? כן / לא

השאלות הבאות נוגעות לילדך. אם יש לך יותר מילד/ה אחד/ת המאובחן עם אוטיזם/הפרעה על רצף האוטיזם, בבקשה בחר/י את הילד הגורם לך למצוקה (סטרס, דחק, עקה) הרבה ביותר. ענה/י על השאלות כפי שמתייחסות אליו/אליה.

1. גיל הילד או הילדה כעת למשל לגיל 4 שנים ו-3 חודשים, יסומנו 4 ו-3) שנים: **XX** חודשים: **YY**
2. מין: זכר / נקבה
3. סדר הילד במשפחה: (1-בכור/בכורה, 2, 3, 4, 5, 6, 7, 8 או גבוה יותר)
4. שביעות הרצון שלי מהקשר עם הילד / הילדה בהם בחרתי להתמקד: 1- גבוהה מאוד, 2-גבוהה, 3- ניטרלי (לא גרוע, אבל יכול להשתפר), 4-נמוכה, 5-נמוכה מאוד, 6- אינני מעונין / מעוניינת לענות
5. גיל הילד או הילדה בעת קבלת האבחנה על רצף האוטיזם: **XX** שנים, **YY** חודשים.
6. האם הילד/ה מאובחן עם אבחנה נוספת? (הפרעת קשב וריכוז, קשיי למידה...)? כן / לא / אינני מעונין/ת לענות. באפשרותך לציין את האבחנות הנוספות שקיבל ילדך / קיבלה ילדתך (נרטיב פתוח, פריט שאינו חובה)
7. אני מרגיש שהסמפטומים של ילדי/ילדתי: 1-חמורים מאוד, 2- חמורים, 3- נטרלי (לא חמורים ולא קלים) 4-לא חמורים 5- כלל לא חמורים (קל להיות איתו/איתה), 6- אינני מעונין/ת לענות.
8. ילדי / ילדתי גר/ה: איתי בבית; בבית עם ההורה אחר; בבית עם בן משפחה אחר; מחוץ לבית/בהוסטל / אחר
9. מי המטפל העיקרי של ילדך/ילדתך? אני / אני ואחרים (למשל בן או בת זוג, בני משפחה אחרים)/ אדם אחר מחוץ למשפחה
10. מהי המסגרת החינוכית של הילד/ה בשגרה. אם הילד או הילדה כרגע נמצאים בבית בשל סגירת המסגרת החינוכית עקב התפרצות מגפת הקורונה, נא סמנו גם אפשרות זו: כיתה או גן רגילים, כיתה יעודית (מיוחדת) בבי״ס רגיל, שילוב בכיתה רגילה (חלק מהיום בכיתה רגילה וחלק מהיום בחינוך מיוחד), בי״ס או גן לחינוך מיוחד, חינוך ביתי או מטופל/ת בבית, כרגע נמצא בבית בשל הקורונה
11. באפשרותך לספר לי דבר נחמד על ילדך/ילדתך שגורם לך לגאווה או שמחה.

Appendix E

Exclusion Criteria Questions

Thank you for your interest in participating in this study! In order to confirm your eligibility for this study, I will present you with a few questions. If you are eligible, you will be presented with the Informed Consent Form. You will learn more about the study and will be able to decide if you are interested in continuing and participating.

	Yes	**No**
I feel stressed in one or more areas of my life		
I am the biological or non-biological parent of a child diagnosed with ASD		
I am the only parent in this household that participates in this study (the other parent did not fill out questionnaires)		
My child received a formal diagnosis of ASD from a professional–a psychologist, psychiatrist, or a medical doctor		
I have a child diagnosed with ASD and younger than 13 years		
I am currently pregnant or plan to get pregnant in the next month		
I am diagnosed with cancer		
I am currently diagnosed with a mental health condition (such as depression)		
I have access to a smartphone or computer and to the internet		

Appendix F

זכאות להשתתף במחקר

אני מודה לך על התעניינותך במחקר! כדי לבדוק התאמה להשתתפות במחקר, אציג בפנייך מספר שאלות. אם על סמך הפרטים הנך זכאי/ת להשתתפות במחקר, יוצג בפנייך טופס ההסכמה להשתתפות במחקר. בטופס יוצגו הסברים על המחקר ותוכלי/תוכל להחליט אם ברצונך להמשיך ולהשתתף בו.

על מנת לבדוק התאמה להשתתפות במחקר, אנא מלא/י את הפרטים הבאים:

	כן	לא
אני מרגיש לחץ לפחות בתחום אחד שלי חיי		
אני ההורה הביולוגי או הלא ביולוגי של ילד או ילדה המאובחנים עם הפרעה על רצף האוטיזם		
ילדי או ילדתי אובחנו ע"י גורם מקצועי - רופא/ה, פסיכיאטר/ית, פסיכולוג/ית		
יש לי ילד או ילדה על הרצף הצעירים מגיל 13 שנים		
אני בהריון או מתכננת להכנס להריון בחודש הקרוב		
אני מתמודד/ת עם מחלת הסרטן		
אני מאובחנ/ת כעת באבחנה פסיכיאטרית כלשהי (למשל דכאון)		
יש לי גישה לטלפון או למחשב, ולאינטרנט		

Appendix G

Perceived Stress Scale (PSS)

INSTRUCTIONS:

The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way.

	Almost never 0	Fairly Never 1	Sometimes 2	Very often 3	Often 4
1. In the last month, how often have you been upset because of something that happened unexpectedly?					
2. In the last month, how often have you felt that you were unable to control the important things in your life?					
3. In the last month, how often have you felt nervous and "stressed"?					
4. In the last month, how often have you felt confident about your ability to handle your personal problems?					
5. In the last month, how often have you felt that things were going your way?					
6. In the last month, how often have you found that you could not cope with all the things that you had to do?					
7. In the last month, how often have you been able to control irritations in your life?					
8. In the last month, how often have you felt that you were on top of things?					
9. In the last month, how often have you been angered because of things that were outside your control?					
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					

Freely available:

Cohen, S. (2015, February 19). Scales—Laboratory for the Study of Stress, Immunity, and Disease—Department of Psychology—Carnegie Mellon University. https://www.cmu.edu/dietrich/psychology/stress-immunity-disease-lab/scales/index.html

Appendix H

סקאלת העקה הפסיכולוגית (PSS-10) Perceived Stress Scale

השאלות הבאות שואלות על רגשותייך ומחשבותייך במהלך החודש האחרון. בכל מקרה תתבקש/י לבחור מהי התדירות בה הרגשת או חשבת בדרך מסויימת.

לכל שאלה בחרו תשובתכם מבין האפשרויות הבאות:

	מעולם לא (0)	כמעט אף פעם (1)	לפעמים (2)	לעיתים קרובות (3)	לעיתים מאוד קרובות (4)
1. בחודש האחרון, באיזו תדירות היית מאוכזב/ת או מודאג/ת בגלל משהו שקרה באופן בלתי צפוי?					
2. בחודש האחרון, באיזו תדירות הרגשת חוסר שליטה על הדברים החשובים בחייך?					
3. בחודש האחרון, באיזו תדירות הרגשת עצבנ/ית ומתוח/ה?					
4. בחודש האחרון, באיזו תדירות הרגשת בטוח/ה בנוגע ליכולתך לטפל בבעיותייך האישיות?					
5. בחודש האחרון, באיזו תדירות הרגשת שדברים מסתדרים לך ("הולכים בדרך שלך")?					
6. בחודש האחרון, באיזו תדירות מצאת שאינך יכול/ה להתמודד עם כל הדברים שהיה עליך לעשות?					
7. בחודש האחרון, באיזו תדירות יכולת לשלוט על דברים מציקים שקרו בחייך?					
8. בחודש האחרון, באיזו תדירות הרגשת שאת/ה מצליח/ה שהכל יהיה תחת שליטה, (מצליח/ה לשלוט בעניינים)?					
9. בחודש האחרון, באיזו תדירות הרגשת כעס בגלל דברים שקרו ושהיו מחוץ לשליטתך?					
10. בחודש האחרון, באיזו תדירות הרגשת שהקשיים נערמים (רבים) כל כך שלא תוכל/י להתגבר עליהם?					

Freely available:
Cohen, S. (2015, February 19). Scales—Laboratory for the Study of Stress, Immunity, and Disease—Department of Psychology—Carnegie Mellon University. https://www.cmu.edu/dietrich/psychology/stress-immunity-disease-lab/scales/index.html

Appendix I

Interpersonal Reactivity Index (IRI)

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: A, B, C, D, or E. When you have decided on your answer, fill in the letter on the answer sheet next to the item number. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can. Thank you.

ANSWER SCALE:

A	B	C	D	E
DOES NOT DESCRIBE ME WELL				DESCRIBES ME VERY WELL

1. I daydream and fantasize, with some regularity, about things that might happen to me. (FS)

2. I often have tender, concerned feelings for people less fortunate than me. (EC)

3. I sometimes find it difficult to see things from the "other guy's" point of view. (PT) (-)

4. Sometimes I don't feel very sorry for other people when they are having problems. (EC) (-)

5. I really get involved with the feelings of the characters in a novel. (FS)

6. In emergency situations, I feel apprehensive and ill-at-ease. (PD)

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it. (FS)(-)

8. I try to look at everybody's side of a disagreement before I make a decision. (PT)

9. When I see someone being taken advantage of, I feel kind of protective towards them. (EC)

10. I sometimes feel helpless when I am in the middle of a very emotional situation. (PD)

11. I sometimes try to understand my friends better by imagining how things look from their perspective. (PT)

12. Becoming extremely involved in a good book or movie is somewhat rare for me. (FS) (-)

13. When I see someone get hurt, I tend to remain calm. (PD) (-)

14. Other people's misfortunes do not usually disturb me a great deal. (EC) (-)

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (PT)(-)

16. After seeing a play or movie, I have felt as though I were one of the characters. (FS)

17. Being in a tense emotional situation scares me. (PD)

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (EC) (-)

19. I am usually pretty effective in dealing with emergencies. (PD) (-)

20. I am often quite touched by things that I see happen. (EC)

21. I believe that there are two sides to every question and try to look at them both. (PT)

22. I would describe myself as a pretty soft-hearted person. (EC)

23. When I watch a good movie, I can very easily put myself in the place of a leading character. (FS)

24. I tend to lose control during emergencies. (PD)

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while. (PT)

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me. (FS)

27. When I see someone who badly needs help in an emergency, I go to pieces. (PD)

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place. (PT)

Freely available:
Davis, M. H. (n.d). Interpersonal Reactivity Index. Retrieved October 30, 2019, from htpps://www.wckerd.edu/psychology/iri/

Appendix J

שאלון מדד התגובתיות הבין-אישית / דיוויס (IRI)

אנא קרא/י את המשפטים שלפניך וסמן לגבי כל הגד עד כמה הוא מתאר את עצמך בסולם 1-5

1= לא מתאר אותי היטב..... 5= מתאר אותי היטב

1. אני הוזה בהקיץ ומדמיין/ת באופן די קבוע דברים שיכולים לקרות לי
2. לעיתים קרובות אני מתמלא/ת ברגשות של השתתפות וחמלה כלפי אלו שגורלם לא שפר עליהם כשלי
3. לעיתים קשה לי לראות דברים מנקודת מבטו של האחר
4. לעיתים אינני מרגיש/ה צער רב כשלאחרים יש בעיות
5. אני נעשה/ית מעורבת מאוד ברגשותיהן של הדמויות בספר שאני קורא/ת
6. במצבי חרום אני מרגיש/ה דאגה ואי שקט
7. לרוב אני אובייקטיבי/ת כשאני צופה בסרט או בהצגה, ולעיתים רחוקות בלבד אני נתפס/ת כולי למתרחש
8. אני מנסה לראות את צדו של כל אחד במחלוקת לפני שאני מגיע/ה להחלטה
9. כשאני רואה מישהו מנוצל, אני מרגיש/ה צורך לגונן עליו/ה
10. אני חש/ה לפעמים חוסר אונים כשאני במרכזה של סיטואציה רגשית מאוד
11. לעיתים אני מנסה להבין טוב יותר את חברי בכך שאני מדמיין/ת איך הדברים נראים מנקודת מבטם
12. מעורבות יתרה בספר טוב או בסרט היא חוויה די נדירה עבורי
13. כשאני רואה מישהו נפגע אני נוטה להישאר רגוע/ה
14. צרותיהם של אחרים אינן מטרידות אותי מאד בדרך כלל
15. אם אני משוכנע/ת בצדקתי בדבר מה, אינני מבזבז/ת זמן רב בהאזנה לטיעוניהם של אחרים
16. קרה בעבר שאחרי סרט או הצגה שראיתי הרגשתי כאילו אני אחת הדמויות
17. מפחיד אותי להיות בסיטואציה טעונה רגשית
18. כשאני רואה מישהו שמתייחסים אליו בחוסר הגינות, קורה שאני לא מרגיש/ה הרבה רחמים עליו
19. בדרך כלל אני יעיל/ה מאוד בטיפול במצבי חירום
20. דברים שמתרחשים סביבי נוגעים תכופות ללבי (בדרך כלל דברים שמתרחשים סביבי נוגעים ללבי)
21. אני מאמין/ה כי יש שני צדדים לכל בעיה ואני מנסה לראות את שניהם
22. הייתי מתאר/ת את עצמי כרך/ת-לב למדי
23. כשאני רואה סרט טוב אני יכול/ה בקלות רבה לשים עצמי במקומה של הדמות המרכזית
24. אני נוטה לאבד שליטה במצבי חירום
25. כשאני כועס/ת על מישהו, אני מנסה בדרך-כלל "לשים עצמי בנעליו" לרגע
26. כשאני קורא/ת ספור מעניין או רומן, אני מדמיין/ת איך הייתי מרגיש/ה אילו אירועי הסיפור היו קורים לי
27. כשאני רואה מישהו במצב חירום, זקוק נואשות לעזרה, אני מאבד/ת את עשתונותיי ("מתפרק/ת")
28. לפני שאני מעביר/ה ביקורת על מישהו אני מנסה לדמיין איך הייתי מרגיש/ה אילו הייתי במקומו/ה

Freely available:
Palgi, S. (2019). Ogdan sheelonim ledivuach atsmi [A collection of self-report questionnaires]. State of Israel, Ministry of Health, The professional committee for clinical psychology.
https://www.health.gov.il/Services/Committee/psychologists_council/Documents/ogdan.pdf

Appendix K

The Broad Autism Questionnaire

Instructions

You are about to fill out a series of statements related to personality and lifestyle. For each question, circle that answer that best describes how often that statement applies to you. Many of these questions ask about your interactions with other people. Please think about the way you are with most people, rather than special relationships you may have with spouses or significant others, children, siblings, and parents. Everyone changes over time, which can make it hard to fill out questions about personality. Think about the way you have been the majority of your adult life, rather than the way you were as a teenager, or times you may have felt different than normal. You must answer each question, and give only one answer per question. If you are confused, please give it your best guess.

1—Very rarely; 2—Rarely; 3—Occasionally; 4—Somewhat often; 5—Often; 6—Very often

Questions	1	2	3	4	5	6
1. I like being around other people						
2. I find it hard to get my words out smoothly						
3. I am comfortable with unexpected changes in plans						
4. It's hard for me to avoid getting sidetracked in conversation						
5. I would rather talk to people to get information than to socialize						
6. People have to talk me into trying something new						
7. I am ''in-tune'' with the other person during conversation***						
8. I have to warm myself up to the idea of visiting an unfamiliar place						
9. I enjoy being in social situations						
10. My voice has a flat or monotone sound to it						
11. I feel disconnected or ''out of sync'' in conversations with others***						
12. People find it easy to approach me***						
13. I feel a strong need for sameness from day to day						
14. People ask me to repeat things I've said because they don't understand						
15. I am flexible about how things should be done						
16. I look forward to situations where I can meet						
17. I have been told that I talk too much about certain topics						
18. When I make conversation, it is just to be polite***						
19. I look forward to trying new things						
20. I speak too loudly or softly						

21. I can tell when someone is not interested in what I am saying***						
22. I have a hard time dealing with changes in my routine						
23. I am good at making small talk***						
24. I act very set in my ways						
25. I feel like I am really connecting with other people						
26. People get frustrated by my unwillingness to bend						
27. Conversation bores me***						
28. I am warm and friendly in my interactions with others***						
29. I leave long pauses in conversation						
30. I alter my daily routine by trying something different						
31. I prefer to be alone rather than with others						
32. I lose track of my original point when talking to people						
33. I like to closely follow a routine while working						
34. I can tell when it is time to change topics in conversation ***						
35. I keep doing things the way I know, even if another way might be better						
36. I enjoy chatting with people ***						

***Casual interaction with acquaintances, rather than special relationships such as with close friends and family members.

Freely available:

Hurley, R. S. E., Losh, M., Parlier, M., Reznick, J. S., & Piven, J. (2007). The Broad Autism Phenotype Questionnaire. *Journal of Autism and Developmental Disorders*, *37*(9), 1679–1690. https://doi.org/10.1007/s10803-006-0299-3

Appendix L

שאלון BAPQ-S

- השאלות הבאות הן בנושאי האישיות, הרגלים וסגנון חיים. אין תשובות נכונות ולא נכונות, אלא אך ורק הבדלים בין אישיים שנוגעים להעדפות.
- עבור כל הצהרה, יש לסמן את התשובה שמתארת באיזו תכיפות (עד כמה) הצהרה זו נכונה לגבייך.
- רבות מהשאלות מתייחסות לאינטראקציות שלך עם אנשים אחרים. אנא חשבי /חשוב על האופן שבו את/ה מתנהג/ת עם מרבית האנשים, ולא על מערכות יחסים ספציפיות שיש לך עם בן או בת זוגך, ילדייך, אחייך והורייך. כל אחד משתנה עם הזמן, דבר שעשוי להקשות עלייך לענות על השאלות שמתייחסות לאישיותך. חשב/י על האופן שבו התנהג/ת ברוב חייך הבוגרים, ולא על האופן שבו היית כמתבגר/ת, או על הפעמים שבהם חשת שונה מכפי שאת/ה בד"כ.
- יש לבחור תשובה אחת בלבד עבור כל שאלה. אם את/ה מתקשה להחליט, אנא בחר/י בין אחת האפשרויות שביניהן התלבטת.
- שימו לב: בשאלות המסומנות *** הכוונה למפגשים עם אנשים שאינם משפחה או חברים קרובים.

	לעיתים רחוקות מאוד	לעיתים רחוקות	לפעמים	לעיתים די קרובות	לעיתים קרובות	לעיתים קרובות מאוד
1. אני אוהב/ת להיות בחברת אנשים אחרים	1	2	3	4	5	6
2. קשה לי לבטא את עצמי בצורה שוטפת	1	2	3	4	5	6
3. אני חש/ה בנוח כאשר מתרחשים שינויים לא צפויים בתכניות	1	2	3	4	5	6
4. במהלך שיחה, קשה לי להימנע מלסטות מנושא השיחה	1	2	3	4	5	6
5. אני מעדיפ/ה לדבר עם אנשים לשם קבלת מידע מאשר לשם מטרות חברתיות	1	2	3	4	5	6
6. אנשים צריכים לשכנע אותי לנסות דבר חדש	1	2	3	4	5	6
7. אני קשוב/ה לאדם השני במהלך שיחה ***	1	2	3	4	5	6
8. אני צריכ/ה להלהיב את עצמי לרעיון של ביקור במקום לא מוכר	1	2	3	4	5	6
9. אני נהנה/ית לקחת חלק במצבים חברתיים	1	2	3	4	5	6
10. לקולי יש נימה שטוחה או מונוטונית	1	2	3	4	5	6
11. אני מרגיש/ה מנותק/ת, או לא מסונכרנ/ת במהלך שיחות עם אחרים ***	1	2	3	4	5	6
12. לאנשים קל לפנות אליי	1	2	3	4	5	6
13. יש לי צורך חזק לשמור על שגרה קבועה מיום ליום	1	2	3	4	5	6

	לעיתים רחוקות מאוד	לעיתים רחוקות	לפעמים	לעיתים די קרובות	לעיתים קרובות	לעיתים קרובות מאוד
14. אנשים מבקשים ממני לחזור על דברים שאמרתי מכיוון שהם לא מבינים	1	2	3	4	5	6
15. אני מגלה גמישות בנוגע לאופן שבו דברים צריכים להיעשות	1	2	3	4	5	6
16. אני מלא/ת ציפייה למצבים שבהם אפגוש אנשים חדשים	1	2	3	4	5	6
17. נאמר לי שאני מדברת יותר מידי על נושאים מסוימים	1	2	3	4	5	6
18. כשאני מנהל/ת שיחה זה רק כדי להיות מנומס/ת ***	1	2	3	4	5	6
19. אני מלא/ת ציפייה לקראת התנסות בדברים חדשים	1	2	3	4	5	6
20. אני מדבר/ת בקול רם מידי או חלש מידי	1	2	3	4	5	6
21. אני מסוגל/ת לזהות מתי מישהו לא מתעניין בדברייי ***	1	2	3	4	5	6
22. קשה לי להתמודד עם שינויים בשגרה	1	2	3	4	5	6
23. אני טוב/ה בלנהל שיחת חולין (small talk)	1	2	3	4	5	6
24. אני מאוד מקפיד/ה על הדרך שלי לעשות דברים	1	2	3	4	5	6
25. אני מרגיש/ה שאני באמת מתחברת לאנשים אחרים	1	2	3	4	5	6
26. אנשים מרגישים תסכול מחוסר נכונותי להתגמש	1	2	3	4	5	6
27. שיחות משעממות אותי ***	1	2	3	4	5	6
28. אני חמ/ה וחברותי/ת באינטראקציות שלי עם אנשים ***	1	2	3	4	5	6
29. אני נוהג/ת לעשות הפסקות ארוכות במהלך שיחה	1	2	3	4	5	6
30. אני נוהג/ת לשנות את שגרת היום יום שלי בכך שאני מנסה משהו שונה	1	2	3	4	5	6
31. אני מעדיפ/ה להיות לבד מאשר עם אנשים	1	2	3	4	5	6
32. אני מאבד/ת את חוט המחשבה הראשוני שלי במהלך שיחה עם אנשים	1	2	3	4	5	6

33. אני אוהב/ת להיצמד לשגרה קבועה במהלך העבודה	1	2	3	4	5	6
34. אני יודע/ת לזהות מתי הגיעה השעה לשנות נושאים במהלך שיחה ***	1	2	3	4	5	6
35. אני ממשיכ/ה לעשות דברים בדרך שאני מכירה, אפילו אם דרך אחרת עשויה להיות טובה יותר	1	2	3	4	5	6
36. אני נהנ/ית לפטפט עם אנשים ***	1	2	3	4	5	6

***** מתייחס לאינטראקציות עם אנשים שהם לא משפחה או חברים קרובים**

Translation provided as a courtesy by Prof. Nurit Yirmiya and Seidman et al. (2012)

Appendix M

Administration Sheet and Journal

Orange group:

- Apply the protocol three times daily until the SUD (subjective unit of distress) is 0, or up to 5 minutes.
- The sequence:
    - Side of hand (15-20 times), under nose (15-20 times) (Think about the stressor)
    - Eyebrow, under eye, under arm, collarbone (Think about the stressor)
    - tiny finger, outer eye, collarbone (Think about anger or rage associated with your stressor, if relevant)
    - under nose, under the lower lip, index finger, collarbone, (think about embarrassment, shame or guilt associated with the stressor, if relevant)
    - gamut spot (50 times), collarbone (think about your sadness, if relevant)
    - *- 9 gamut-*
    - repeat from "eyebrow" to last "collarbone" (without side of hand, under nose and the 9-gamut).
    - Floor to ceiling eye roll.

<u>9-gamut:</u>

Open your eyes, head stable

Close eyes

Eyes looking down to one side (return to center)

Eyes looking down to the other side (return to center)

Roll eyes in a complete circle in one direction

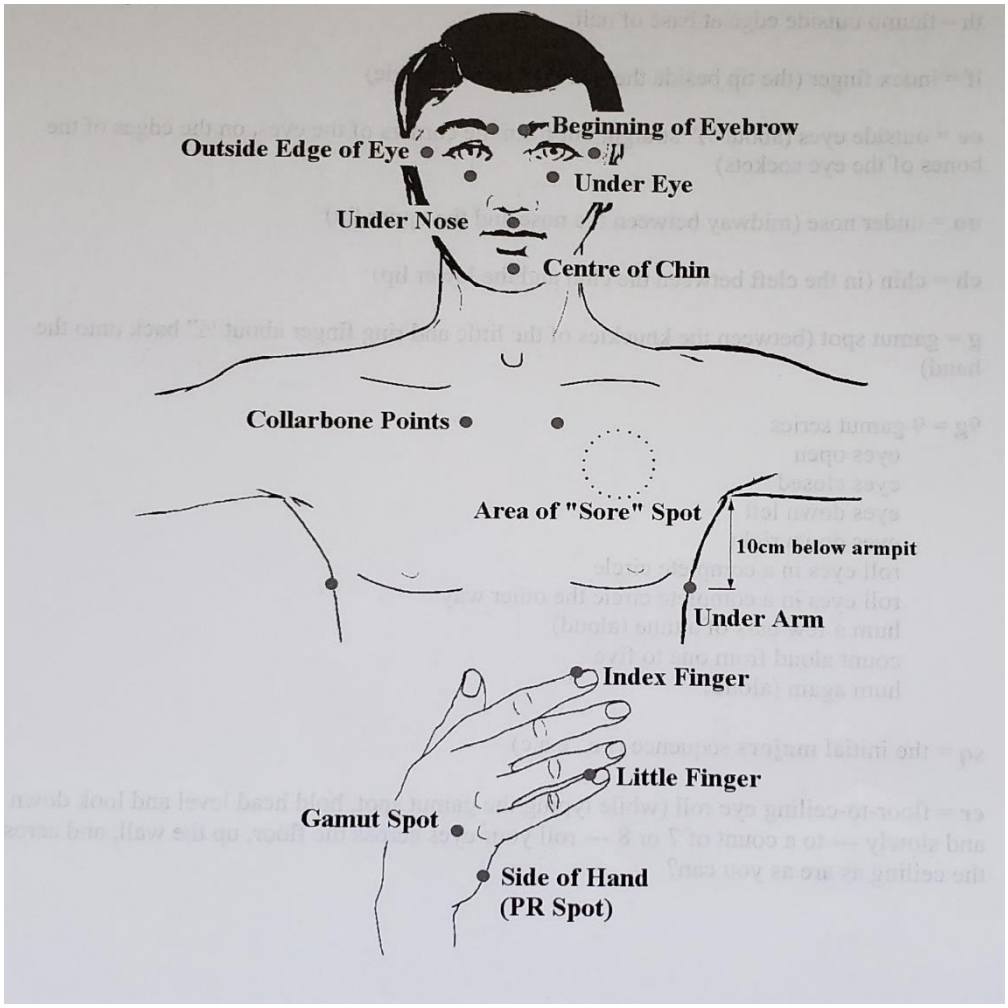
Roll eyes in a complete circle in the other direction

Hum a tune

Count to 5

Hum a tune again

- For a reminder, please refer to the YouTube video – https://youtu.be/mG_7LvYJM0o
    - Please refer to the picture for clarity:



Important reminders:

- Think of an issue that is stressing you NOW (at the moment you are applying the protocol).
- Be as specific as possible when thinking about your stressor (specific thought and related sights, smells, tactile feelings).
- Be aware of where the feeling is in your body.
- Fill out the journal.

Following is a list of stressors. In case you need ideas for stressors, you may use the following list. The list in no way indicates things you should be stressed about. You might be stressed by only some of them or none of them or perhaps by other things.
If any of these are relevant to you *and* you decide to think of them, please form a *specific* thought. If they are not relevant, you do not need to use any of the ideas suggested.

Stress related to a relationship
Work-related stress
Finances
My social life
My health / health of partner
My age / age of partner
My ability to take care of myself
Lack of social support
Lack of economic support
Too much to do, not enough time
Health of child with ASD
Health of other child/children
The social life of my child with ASD
The social life of my other child/children
The severity of my child's ASD symptoms
Difficult behavior of my child with ASD
Difficult behavior of my other child or children
The ability of my child with ASD to communicate
My ability to set limits to my child with ASD
My ability to set limits for my child/children without ASD
My ability to understand my child with ASD
Lack of satisfaction from parenting
Stress related to school, teachers, or peers of my child with ASD
Stress related to school, teachers, or peers of my other child or children
Stress related to therapies of child with ASD
Stress from insensitive people
Stress from going out with my child with ASD (shopping, park, doctor, restaurant….)
Politics
People outside of my immediate family:
Their health, their financial situation, other concerns

Journal

Please use this form each time you apply the protocol.

This form is personal and is intended to support your application of the stress reduction strategy. Within two weeks, you will be asked to share some of the information gathered in this form. You will not need to submit the form itself.

I recommend you list the thought you are engaged with when you apply the protocol, as it will help your practice. Sharing these thoughts with me will be optional.

Date/ number of applied the times I protocol	Thought while applying the protocol	Thought related to child with ASD	Beginning SUD	End SUD	Time duration I applied the protocol (minutes)	I watched the video	I did not apply the protocol
/ / 20							
1		Y / N				Y / N	
2		Y / N				Y / N	
3		Y / N				Y / N	
/ / 20							
1		Y / N				Y / N	
2		Y / N				Y / N	
3		Y / N				Y / N	
/ / 20							
1		Y / N				Y / N	
2		Y / N				Y / N	
3		Y / N				Y / N	

Thoughts / comments:

_____

_____

Please contact me with any questions! Researcher Contact Information: Hadas Keppel; hkeppel@email.fielding.edu; Phone: 669-XXX-XXXX (WhatsApp: +972-XXXX-XXXXX)

Appendix N

Administration Sheet and Journal

Banana Group:

- Apply the protocol 3 times daily until your SUD (subjective unit of distress) is 0, or up to 5 minutes.
- The sequence: With an open hand (the palm of your hands, no fingers touching):
    - 15 times on your cheeks, inner elbow (Think about the stressor)
    - 15 times under chin, inner elbow (Think about anger or rage associated with your stressor, if relevant)
    - 15 times on your forearm, then 15 times on your other forearm, inner elbow (think about embarrassment, shame or guilt associated with the stressor, if relevant)
    - 15 times on your thigh (on the front part), then 15 times on your other thigh (on the front part), 15 times on your inner elbow (think about your sadness, if relevant)
    - Sing a song.
    - Repeat twice.
    - Namaste (hold palms together in midline).
- For a reminder, please refer to the YouTube video - https://youtu.be/lM8EzjtTDPw
- Please refer to the picture for clarity.

Important reminders:

- Think of an issue that is stressing you NOW (at the moment you are applying the protocol).
- Be as specific as possible when thinking about your stressor (specific thought and related sights, smells, tactile feelings).
- Be aware of where the feeling is in your body.
- Fill out the journal.

Following is a list of stressors. In case you need ideas for stressors, you may use the following list. The list in no way indicates things you should be stressed about. You might be stressed by only some of them or none of them or perhaps by other things.

If any of these are relevant to you *and* you decide to think of them, please form a *specific* thought. If they are not relevant, you do not need to use any of the ideas suggested.

Stress related to a relationship
Work-related stress
Finances
My social life
My health/ health of partner
My age/ age of partner
My ability to take care of myself
Lack of social support
Lack of economic support
Too much to do, not enough time
Health of child with ASD
Health of other child/children
The social life of my child with ASD
The social life of my other child/children
The severity of my child's ASD symptoms
Difficult behavior of my child with ASD
Difficult behavior of my other child or children
The ability of my child with ASD to communicate
My ability to set limits to my child with ASD
My ability to set limits for my child/children without ASD
My ability to understand my child with ASD
Lack of satisfaction from parenting
Stress related to school, teachers, or peers of my child with ASD
Stress related to school, teachers, or peers of my other child or children
Stress related to therapies of child with ASD
Stress from insensitive people
Stress from going out with my child with ASD (shopping, park, doctor, restaurant….)
Politics
People outside of my immediate family:
Their health, their financial situation, other concerns

Journal

Please use this form each time you apply the protocol.
This form is personal and is intended to support your application of the stress reduction strategy. Within two weeks, you will be asked to share some of the information gathered in this form. You will not need to submit the form itself.
I recommend you list the thought you are engaged with when you apply the protocol, as it will help your practice. Sharing these thoughts with me will be optional.

Date/ number of applied the times I protocol	Thought while applying the protocol	Thought related to child with ASD	Beginning SUD	End SUD	Time duration I applied the protocol (minutes)	I watched the video	I did not apply the protocol
/ / 20							
1		Y / N				Y / N	
2		Y / N				Y / N	
3		Y / N				Y / N	
/ / 20							
1		Y / N				Y / N	
2		Y / N				Y / N	
3		Y / N				Y / N	
/ / 20							
1		Y / N				Y / N	
2		Y / N				Y / N	
3		Y / N				Y / N	

Thoughts / comments:

_____

_____

Please contact me with any questions! Researcher Contact Information: Hadas Keppel, hkeppel@email.fielding.edu, Phone: 669-XXX-XXXX (WhatsApp: +972-XXXX-XXXX)

Appendix O

טופס הנחייה ומעקב

קבוצת "תפוז":

- יישמו את הפרוטוקול שלוש פעמים ביום, עד שמדד המצוקה הסוביקטיבי יהיה 0, או עד 5 דקות.
- סדר יישום הפרוטוקול:
  - צד היד (מכת קרטה, 15-20 פעמים), מתחת לאף (15-20 פעמים) (מחשבות על הארוע שגורם לסטרס)
  - בקצה הגבה, מתחת לעין, מתחת לזרוע, עצם הבריח (מחשבות על הארוע שגורם לסטרס)
  - זרת, זוית חיצונית של העין, עצם הבריח (בזמן הביצוע, להתמקד בכעס או זעם ששיכים לנושא שגורם לסטרס, אם רלבנטי)
  - מתחת לאף, מתחת לשפה התחתונה, אצבע מורה, עצם הבריח (בזמן הביצוע, התמקדות בתחושות מבוכה, בושה או אשמה הקשורים לנושא הגורם לסטרס, אם רלבנטי)
  - נקודת הגמוט (50 פעמים), עצם הבריח (בזמן הביצוע, התמקדות בתחושות עצב הקשורות לגורם הסטרס, אם רלבנטי)
  - "סדרה חזרתית" (בזמן הביצוע, מחשבות על הארוע שגורם לסטרס)
  - חזרה על הרצף מ"קצה הגבה" ועד ל"עצם הבריח" האחרון (כלומר, ללא צד היד ומתחת לאף המופיעים בהתחלה וללא הסדרה החזרתית).
  - גלגול עיניים מהרצפה לתקרה.

<u>סדרה חזרתית, לבצע תוך טפיחות על נקודת הגמוט</u>:

הראש מוחזק יציב. פתיחת עיניים

סגירת עיניים

העיניים מתבוננות למטה לצד אחד (ולחזור למרכז)

העיניים מתבוננות לצד שני (ולחזור למרכז)

גלגול עיניים בעיגול מלא לצד אחד

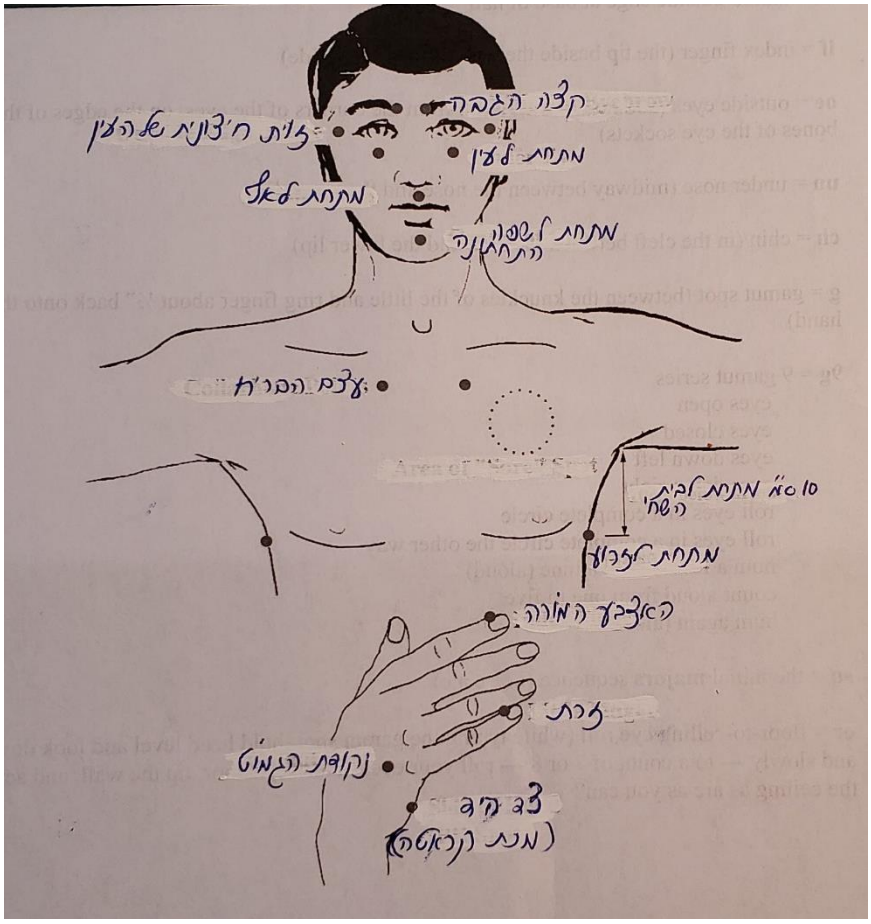
גלגול עיניים בעיגול מלא לצד השני

לזמזם מנגינה ללא מילים

לספור עד חמש

לזמזם שוב

- ניתן לצפות בוידאו לתזכורת, בלינק: <u>https://youtu.be/0zwHwaa4hRc</u>
- לשימושך תמונה להבהרות ולתזכורת:



חשוב לזכור:

- יש לחשוב על משהו שמלחיץ אותך עכשיו (בזמן ביצוע הפרוטוקול)
- יש לחשוב על הגורם המלחיץ באופן מדויק ככל האפשר (מחשבה ספציפית, תחושות, מראה, ריח)
- היה מודע/היי מודעת למיקום התחושה בגופך
- מלא/י את יומן המעקב

להלן רשימה של גורמי לחץ. ניתן להשתמש בהם כרעיונות לנושאים עליהם תחשבי/תחשוב בזמן יישום הפרוטוקול. אין הכרח שהנושאים המופיעים ברשימה יהוו עבורך גורם לחץ. יתכן שאחד הפריטים ברשימה יגרום לך לתחושת סטרס (לחץ), אף אחד מהם לא יגרום לתחושת לחץ, או שנושאים שאינם רשומים יגרמו לך לתחושת לחץ. אם מי מהנושאים רלבנטי לך ותחליט/י לחשוב עליהם, בבקשה גבש/י מחשבה ספציפית, מדויקת. אם הנושאים ברשימה אינם רלבנטים, אינך צריכ/ה להשתמש ברעיונות אלה.

לחץ הקשור למערכת יחסים
לחץ הקשור לעבודה
ענינים כספיים
החיים החברתיים שלי
הבריאות שלי / בריאות בן או בת הזוג
גילי / גיל בן או בת הזוג
היכולת שלי לטפל בעצמי
העדר תמיכה חברתית
העדר תמיכה כלכלית
יותר מדי מה לעשות ואין מספיק זמן
בריאות הילד המאובחן עם הפרעה על רצף האוטיזם
בריאות ילד/ילדים אחרים
חיי החברה של ילדים המאובחן עם הפרעה על רצף האוטיזם
חיי החברה של ילדיי האחרים
חומרת הסמפטומים של ילדי המאובחן עם הפרעה על רצף האוטיזם
קשיים התנהגותיים של ילדי המאובחן עם הפרעה על רצף האוטיזם
קשיים התנהגותיים של ילדי/ילדיי האחרים

יכולות התקשורת של ילדי המאובחן עם הפרעה על רצף האוטיזם
יכולתי להציב גבולות לילדי המאובחן עם הפרעה על רצף האוטיזם
יכולתי להציב גבולות לילדיי האחרים
יכולתי להבין את ילדי המאובחן עם הפרעה על רצף האוטיזם
העדר סיפוק מלהיות הורה
לחץ הקשור לביה״ס, סגל הוראה או חברים של ילדים המאובחן עם אוטיזם
לחץ הקשור לביה״ס, סגל הוראה או חברים של ילדיי האחר/ים
לחץ הקשור לטיפולים (פסיכולוגיים, פרא-רפואיים) שמקבל ילדי המאובחן עם הפרעה על רצף האוטיזם
לחץ הנגרם לי מאנשים בעלי התנהגות לא רגישה
לחץ הקשור ליציאה מהבית עם ילדי המאובחן עם הפרעה על רצף האוטיזם (קניות, גינה ציבורית, קופת חולים, מסעדה)
פוליטיקה
אנשים מחוץ למשפחה המיידית : בריאותם, מצבם הכלכלי, דאגות אחרות

<u>יומן מעקב</u>

נא מלא/מלאי טופס זה כל פעם שהנך מבצע/ת את הפרוטוקול להפחתת הלחץ (סטרס)

הטופס הוא לשימוש אישי לצורכי מעקב והתמדה בביצוע תרגילי הפחתת הסטרס. בתום שבועיים אבקש שתשתפ/י אותי בחלק מהמידע שמלאת. לא יהיה צורך במסירת הטופס עצמו.

כדי ליישם טוב יותר את הטכניקה ולעזור לך במעקב, אני ממליצה שתרשום/תרשמי את המחשבה שעלתה בראשך בזמן יישום השיטה להפחתת לחץ (סטרס). תוכל/י לבחור אם לשתף אותי במחשבות אלה, אך זו לא תהיה חובה.

תאריך / מס' פעמים ביום שביצעתי את הפרוטוקול	נושא (המחשבה)	הנושא קשור לילד? כן/לא	SUD (יחידת מצוקה סוביקטיבית) בהתחלה	SUD בסיום	משך זמן יישום השיטה	צפיתי בוידאו	לא יישמתי את השיטה
/20 /							
1		כן/לא				כן/לא	
2		כן/לא				כן/לא	
3		כן/לא				כן/לא	
/20 /		כן/לא				כן/לא	
1		כן/לא				כן/לא	
2		כן/לא				כן/לא	
3		כן/לא				כן/לא	
/20 /		כן/לא				כן/לא	
1		כן/לא				כן/לא	
2		כן/לא				כן/לא	
3		כן/לא				כן/לא	
		כן/לא				כן/לא	

מחשבות/ הערות:

_____

_____

_____

אנא צרי/צור קשר עם כל שאלה! פרטי התקשרות: הדס קפל, hkeppel@email.fielding.edu נייד: XXXXXX-055

Appendix P

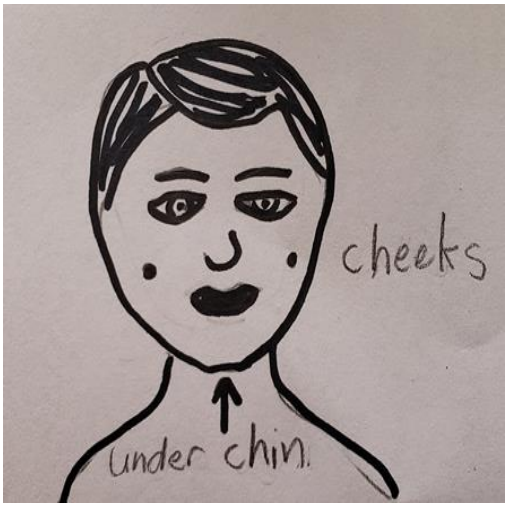
טופס הנחייה ומעקב

קבוצת "בננה"

- ישמו את הפרוטוקול שלוש פעמים ביום, עד שמדד המצוקה הסוביקטיבי יהיה 0, או עד 5 דקות.
- סדר יישום הפרוטוקול: עם יד פתוחה (כף היד, כך שאצבעות אינן נוגעות):
- 15 פעמים על הלחיים, על חלק פנימי של המרפק (חשבו על גורם הלחץ)
- 15 פעמים מתחת לסנטר, על החלק הפנימי של המרפק (חשבו על כעס או זעם הקשורים למקור הלחץ, אם רלבנטי)
- 15 פעמים על האמה של זרוע אחת ואז 15 פעמים על האמה של הזרוע השניה, פנים המרפק (חשבו על מבוכה, בושה או תחושת אשמה הקשורים לגורם הלחץ, אם רלבנטי)
- 15 פעמים עם יד פתוחה על הירך מלפנים ואז 15 על הירך השניה מלפנים, 15 פעמים על החלק הפנימי של המרפק (חשבו על עצב, אם רלבנטי)
- לשיר שיר קצר (מילים ומנגינה).
- לחזור פעמיים על הסבב.
- נמסטה (הצמדת ידיים במרכז החזה).

ניתן לצפות בוידאו לתזכורת, בלינק: https://youtu.be/oiunD-S-OSQ

ניתן להשתמש בתמונה להבהרות ולתזכורת:



חשוב לזכור:

- יש לחשוב על משהו שמלחיץ אותך עכשיו (בזמן ביצוע הפרוטוקול)
- יש לחשוב על הגורם המלחיץ באופן מדויק ככל האפשר (מחשבה ספציפית, תחושות, מראה, ריח)
- היה מודע/ הייי מודעת למיקום התחושה בגופך
- מלא/י את יומן המעקב

להלן רשימה של גורמי לחץ. ניתן להשתמש בהם כרעיונות לנושאים עליהם תחשבי/תחשוב בזמן יישום הפרוטוקול. אין הכרח שהנושאים המופיעים ברשימה יהוו עבורך גורם לחץ. שאחד הפריטים ברשימה יגרום לך לתחושת סטרס (לחץ), אף אחד מהם לא יגרום לתחושת לחץ, או שנושאים שאינם רשומים יגרמו לך לתחושת לחץ אם מי מהנושאים רלבנטי לך ותחליט/י לחשוב עליהם, בבקשה גבש/י מחשבה ספציפית, מדויקת. אם הנושאים ברשימה אינם רלבנטים, אינך צריכ/ה להשתמש ברעיונות אלה.

לחץ הקשור למערכת יחסים
לחץ הקשור לעבודה
ענינים כספיים
החיים החברתיים שלי
הבריאות שלי / בריאות בן או בת הזוג
גילי / גיל בן או בת הזוג
היכולת שלי לטפל בעצמי
העדר תמיכה חברתית
העדר תמיכה כלכלית
יותר מדי מה לעשות ואין מספיק זמן
בריאות הילד המאובחן עם הפרעה על רצף האוטיזם
בריאות ילד/ילדים אחרים
חיי החברה של ילדים המאובחן עם הפרעה על רצף האוטיזם
חיי החברה של ילדיי האחרים
חומרת הסמפטומים של ילדי המאובחן עם הפרעה על רצף האוטיזם
קשיים התנהגותיים של ילדי המאובחן עם הפרעה על רצף האוטיזם
קשיים התנהגותיים של ילדי/ילדיי האחרים
יכולות התקשורת של ילדי המאובחן עם הפרעה על רצף האוטיזם
יכולתי להציב גבולות לילדי המאובחן עם הפרעה על רצף האוטיזם
יכולתי להציב גבולות לילדיי האחרים
יכולתי להבין את ילדי המאובחן עם הפרעה על רצף האוטיזם
העדר סיפוק מלהיות הורה
לחץ הקשור לביה״ס, סגל הוראה או חברים של ילדים המאובחן עם אוטיזם
לחץ הקשור לביה״ס, סגל הוראה או חברים של ילדיי האחר/ים
לחץ הקשור לטיפולים (פסיכולוגיים, פרא-רפואיים)
שמקבל ילדי המאובחן עם הפרעה על רצף האוטיזם
לחץ הנגרם לי מאנשים בעלי התנהגות לא רגישה
לחץ הקשור ליציאה מהבית עם ילדי המאובחן עם הפרעה על רצף האוטיזם (קניות, גינה ציבורית, קופת חולים, מסעדה)
פוליטיקה
אנשים מחוץ למשפחה המיידית: בריאותם, מצבם הכלכלי, דאגות אחרות

<u>יומן מעקב</u>

נא מלא/מלאי טופס זה כל פעם שהנך מבצע/ת את הפרוטוקול להפחתת הלחץ (סטרס)

הטופס הוא לשימוש אישי לצורכי מעקב והתמדה בביצוע תרגילי הפחתת הסטרס. בתום שבועיים אבקש שתשתפ/י אותי בחלק מהמידע שמלאת. לא יהיה צורך במסירת הטופס עצמו.

כדי ליישם טוב יותר את הטכניקה ולעזור לך במעקב, אני ממליצה שתרשום/תרשמי את המחשבה שעלתה בראשך בזמן יישום השיטה להפחתת לחץ (סטרס). תוכל/י לבחור אם לשתף אותי במחשבות אלה, אך זו לא תהיה חובה.

תאריך / מס' פעמים ביום שביצעתי את הפרוטוקול	נושא (המחשבה)	הנושא קשור לילד? כן/לא	SUD (יחידת מצוקה סוביקטיבית) בהתחלה	SUD בסיום	משך זמן יישום השיטה	צפיתי בוידאו	לא יישמתי את השיטה
/20 /							
1		כן/לא				כן/לא	
2		כן/לא				כן/לא	
3		כן/לא				כן/לא	
/20 /		כן/לא				כן/לא	
1		כן/לא				כן/לא	
2		כן/לא				כן/לא	
3		כן/לא				כן/לא	
/20 /		כן/לא				כן/לא	
1		כן/לא				כן/לא	
2		כן/לא				כן/לא	
3		כן/לא				כן/לא	
		כן/לא				כן/לא	

מחשבות/ הערות:

_____

_____

_____

_____

אנא צרי/צור קשר עם כל שאלה! פרטי התקשרות: הדס קפל,hkeppel@email.fielding.edu נייד: 055-XXX-XXXX

Appendix Q

Post-Intervention Questionnaire

Upon completion of two weeks of this study, please answer the following questions based on your journal. If you did not document the information in your journal, please provide your best estimate.

1. How much did the protocol you used help you handle stress in your life? The protocol…. Was very helpful (7), 6, 5, Was somewhat helpful (4), 3, 2, Was not helpful at all (1)
2. I think I administered the protocol correctly. Yes, No, Not sure
3. In the past two weeks, on how many days did you apply the protocol? (1-14)
4. On most days that I applied the protocol, I applied it: once a day, twice a day, three times a day, four times a day or more, on most days I did not apply the protocol
5. On most days that I applied the protocol, I applied it for a combined duration of: up to 15 minutes, 15-30 minutes, over 30 minutes.
6. When applying the protocol, I thought of … (mark all that apply): Concerns and issues related to my child with ASD, general concerns and issues, other (can specify)
7. During the past two weeks, the number of times I watched the video to support my practice was… (please estimate)
8. Did you discuss your stress reduction protocol (the points you touched on your body) with anyone else who is a ***participant*** in this study? (Yes/No).
    a. If Yes, what is your relationship to this person/people? (mark all that apply) (spouse or partner, other relative, an individual not related to me)
    b. Was this person/people's protocol identical to yours? (Yes/No/I don't know/ I spoke with several people-some shared the same protocol and others had a different one)
9. Did anyone else apply the stress reduction protocol with you or with your encouragement or support? (Yes/No)
    a. If yes, what is your relationship with this person/these people? (mark all that apply) (Spouse or partner, my parent, my child with ASD, my other child/ren, another relative, another individual)

10. In these past two weeks, you might have felt changes in different areas of your life. Please mark all that apply:

	Improved much	**Somewhat improved**	**No change**	**Somewhat worsened**	**Worsened much**	**Not relevant**
General health						
Sleep						
Appetite/eating						
My relationships with my partner						
My relationships with my child with ASD						
My relationships with my other children						
My relationships with my parents						
My relationships with my friends						
My relationships with my colleagues / co-workers						
My relationship with my employer						
Changes in my social life						
A different attitude toward myself						
Thoughts or feelings that are new or not familiar to me						
Other areas						

11. Is there anything else you would like to share or comment about the study? (Open, voluntary).

As this study continues, I ask that you do not share your stress reduction protocol, to not impact the study results. In the next month please administer the protocol according to your personal need. (I confirm that I will follow these guidelines).

Appendix R

<u>שאלון מעקב בסיום שלב ההתערבות</u>

נא להשיב על השאלות הבאות על בסיס יומן המעקב שנהלת בשבועיים החולפים. אם המידע לא תועד ביומן המעקב, יש לענות כמיטב יכולתך.

1. להערכתך, עד כמה הפרוטוקול להפחתת לחץ (סטרס) בו השתמשת עזר לך להתמודד עם לחצים בחייך? הפרוטוקול: עזר לי מאוד (7), 6, 5, עזר לי במידה מסוימת (4), 3, 2, לא עזר כלל (1).
2. אני מרגיש/ה שביצעתי את הפרוטוקול נכון. כן / לא/ לא בטוח/ה
3. במהלך השבועיים האחרונים, במשך כמה ימים ביצעת את הפרוטוקול? (14-1)
4. ברב הימים בהם בצעתי את הפרוטוקול, בצעתי אותו: (פעם אחת ביום, פעמיים ביום, שלוש פעמים ביום, 4 פעמים ביום או יותר, ברב הימים לא בצעתי את הפרוטוקול).
5. ברב הימים בצעתי את הפרוטוקול **במצטבר** במשך: (עד 15 דקות ביום, 30-15 דקות ביום, יותר מ-30 דקות ביום).
6. כשבצעתי את הפרוטוקול להפחתת לחץ, חשבתי על (ניתן לסמן יותר מתשובה אחת): (נושאים ודאגות הקשורים לילדי/ילדתי, נושאים ודאגות כלליים, אחר (אנא פרט/י)
7. במהלך השבועיים החולפים, צפיתי בסרט הוידאו כדי לסייע לי במהלך התרגול (נא להעריך מספר פעמים
8. האם שוחחת על הפרוטוקל (הנקודות בגופך בהן נגעת והסדר שלהן) עם אדם נוסף המשתתף במחקר? (כן/לא)
   א. מה קרבתך אל האדם עמו שוחחת על הפרוטוקול? אם שוחחת עם מספר אנשים ניתן לבחור ביותר מתשובה אחת. (בן/בת זוג, קרוב משפחה אחר, אדם שאינו קרוב משפחה שלי)
   ב. האם הפרוטוקול של אדם זה היה זהה לשלך? (כן/לא/לא יודע/שוחחתי עם מספר אנשים ולחלקם פרוטוקול זהה ולחלקם לא)
9. האם אדם שאינו משתתף במחקר בצע את הפרוטוקול להפחתת לחץ איתך או בעידודך? (כן/לא). אם כן, מה קרבתו אליך? (בן/בת זוג, ההורה שלי, ילדי שעל רצף האוטיזם, ילדיי האחרים, קרוב משפחה אחר, אדם אחר שאינו קרוב משפחה) (יותר מתשובה אחת מותרת)
10. בשבועיים האחרונים יתכן שחשת בשינויים בתחומים שונים בחייך. סמנ/י את מה שרלבנטי.

	השתפר מאוד	השתפר במידת מה	ללא שינוי	הורע / הוחמר במידת מה	הורע / הוחמר מאוד	לא רלבנטי
בריאות כללית						
שינה						
אכילה/תאבון						
יחסיי עם בן/בת זוגי						

	השתפר מאוד	השתפר במידת מה	ללא שינוי	הורע / הוחמר במידת מה	הורע / הוחמר מאוד	לא רלבנטי
יחסיי עם ילדי המאובחן הם הפרעה ברצף האוטיזם						
יחסיי עם ילדיי האחרים						
יחסיי עם הוריי						
יחסיי עם חברים						
יחסיי עם חברים לעבודה (קולגות)						
יחסיי עם מעסיקי						
שינויים בחיים החברתיים						
יחס שונה כלפי עצמי						
מחשבות או רגשות חדשים או שאינם מוכרים לי						
תחומים אחרים						

11. האם יש משהו נוסף שברצונך לחלוק או להעיר לגבי המחקר?

המחקר ממשיך ולכן אבקש לא לחלוק עם אחרים את פרטי הפרוטוקול שביצעתם / אתם מבצעים, כדי לא לפגוע בממצאי המחקר. במהלך החודש הקרוב יש לבצע את הפרוטוקול בהתאם לצורך האישי. (קראתי ואני מאשר/ת)

Appendix S

Follow-Up Questionnaire

It has been six weeks since you started applying the stress reduction protocol. Please answer the following questions based on your journal. If you did not document the information in your journal, please provide your best estimate.

1. How much did the protocol you used help you handle stress in your life? The protocol…. Was very helpful (7), 6, 5, Was somewhat helpful (4), 3, 2, Was not helpful at all (1)
2. I think I administered the protocol correctly. Yes, No, Not sure
3. In the past four weeks, on how many days did you apply the protocol? (1-14)
4. On most days that I applied the protocol, I applied it: once a day, twice a day, three times a day, four times a day or more, on most days I did not apply the protocol
5. On most days that I applied the protocol, I applied it for a combined duration of: up to 15 minutes, 15-30 minutes, over 30 minutes.
6. When applying the protocol, I thought of … (mark all that apply): Concerns and issues related to my child with ASD, general concerns and issues, other (can specify)
7. During the past four weeks, I watched the video to support my practice (estimate number)
8. Did you talk about your stress reduction protocol (the points you touched on your body) with anyone else who is a participant in this study? (Yes/No).
    a. If Yes, what is your relationship to this person/people? (mark all that apply) (spouse or partner, other relative, other unrelated individual)
    b. Was this person's/people's protocol identical to yours? (Yes/No/I don't know/ I spoke with a few people-some had the same protocol and others had a different one)
9. Did anyone else apply the stress reduction protocol with you or with your encouragement or support? (Yes/No)
    a. If yes, what is your relationship with this person/these people? (mark all that apply) (Spouse or partner, my parent, my child with ASD, my other child/ren, another relative, another individual) (More than one option allowed)

10. In these past six weeks, you might have felt changes in different areas of your life. Please mark all that apply:

	Improved much	**Somewhat improved**	**No change**	**Somewhat worsened**	**Worsened much**	**Not relevant**
General health						
Sleep						
Appetite/eating						
My relationships with my partner						
My relationships with my child with ASD						
My relationships with my other children						
My relationships with my parents						
My relationships with my friends						
My relationships with my colleagues / co-workers						
My relationship with my employer						
Changes in my social life						
A different attitude toward myself						
Thoughts or feelings that are new or not familiar to me						
Other areas						

11. Did you try to find additional information about the stress reduction strategy you used? This might have been by an online search or asking other people. Yes. I discovered that (Open narrative, optional)
12. Is there anything else you would like to share or comment about the study? (Open, voluntary).

Thank you for participating in this study! If you indicated at the beginning of the study that you are interested to receive the results, I will send them to you upon completion of the study. Additionally, if I find that the protocol you learned wasn't as efficient as the other protocol tested in this study, I will contact you to offer instruction on the other protocol. (I have read this and approve)

Appendix T

<u>שאלון מעקב בסיום המחקר</u>

נא להשיב על השאלות הבאות על בסיס יומן המעקב שנהלת בחודש החולף. אם המידע לא תועד ביומן המעקב, יש לענות כמיטב יכולתך.

1. להערכתך, עד כמה הפרוטוקול להפחתת לחץ (סטרס) בו השתמשת עזר לך להתמודד עם לחצים בחייך (7=עזר לי מאוד, 6 ,5 ,4=עזר במידה מסוימת, 3 ,2, 1=לא עזר כלל)
2. אני מרגיש/מרגישה שבצעתי את הפרוטוקול נכון (כן, לא, לא בטוח/ה).
3. במהלך החודש האחרון, במשך כמה ימים ביצעת את הפרוטוקול? (אפשרות בחירה 30-0).
4. ברב הימים בהם בצעתי את הפרוטוקול בחודש האחרון, בצעתי אותו: (פעם אחת ביום, פעמיים ביום, שלוש פעמים ביום, ארבע פעמים או יותר ביום, ברב הימים לא בצעתי את הפרוטוקול).
5. ברב הימים בצעתי את הפרוטוקול במצטבר: (עד 15 דקות ביום, 30-15 דקות ביום, יותר מ30 דקות ביום).
6. כשבצעתי את הפרוטוקול להפחתת לחץ, חשבתי על (ניתן לבחור יותר מאחד): (נושאים ודאגות הקשורים לילדי/ילדתי, נושאים ודאגות כלליים,אחר (אנא פרט/י)
7. במהלך החודש החולף, צפיתי בסרט הוידאו כדי לסייע לי במהלך התרגול (נא להעריך את מס' הפעמים)
8. האם במהלך החודש האחרון שוחחת על הפרוטוקל (הנקודות בגופף בהן נגעת והסדר שלהן) עם אדם נוסף המשתתף במחקר? (כן/לא)

   א. אם כן, מה קרבתך אל האדם עמו שוחחת על הפרוטוקול? (אם שוחחת עם מספר אנשים, ניתן לבחור יותר מתשובה אחת) (בן/בת זוג, קרוב משפחה אחר, אדם שאינו קרוב משפחה שלי)

   ב. האם הפרוטוקול של אדם זה היה זהה לשלך? (כן/לא/לא יודע/שוחחתי עם מספר אנשים. לחלקם היה פרוטוקול זהה ולחלקם שונה)

9. האם אדם שאינו משתתף במחקר בצע את הפרוטוקול להפחתת לחץ איתך או בעידודך?(כן/לא).

   ג. מה הקרבה שלך אל האדם שבצע את הפרוטוקול איתך? (ניתן לסמן יותר מאחד) (בן/בת זוג, ההורה שלי, ילדי שעל רצף האוטיזם, ילדיי האחרים, קרוב משפחה אחר, אדם שאינו קרוב משפחה)

10. בחודש האחרון יתכן שחשת בשינויים בתחומים שונים בחייך. נא לסמן בהתאם לתחושתך.

	השתפר מאוד	השתפר במידה מה	ללא שינוי	הוחמר / הורע במידת מה	הוחמר / הורע מאוד	לא רלבנטי
בריאות כללית						
שינה						
אכילה/תאבון						
יחסיי עם בן/בת זוגי						
יחסיי עם ילדי המאובחן על רצף האוטיזם						
יחסי עם ילדיי האחרים						
יחסיי עם הורי						
יחסיי עם חברים						
יחסיי עם חברים לעבודה (קולגות)						
יחסיי עם מעסיקי						
שינויים בחיים החברתיים						
יחס שונה כלפי עצמי						
מחשבות או רגשות חדשים או שאינם מוכרים לי						
תחומים אחרים						

11. האם ניסית למצוא חומר על השיטה להפחתת לחץ בה השתמשת? כולל חיפוש ברשת האינטרנט או ששאלת אנשים אחרים. כן. גיליתי / הבנתי ש(ניתן למלא) /לא.
12. האם יש משהו נוסף שברצונך להעיר או לחלוק על המחקר?

אני מודה לך על השתתפותך במחקר! אם בתחילת המחקר ציינת שברצונך לדעת את התוצאות, אני אשלח לך אותם בסיום המחקר. כמו כן, אם יתברר שהפרוטוקול שבצעת היה יעיל פחות מהפרוטוקול האחר שנבדק במחקר, אהיה בקשר כדי ללמדך את הפרוטקול האחר (קראתי ואני מאשר/ת).

Appendix U

Invitation to participate in a study: Reducing stress for parents of children with ASD (Eng.)

Hello,

My name is Hadas Keppel. I am a PhD candidate, a developmental psychologist (Israel), and a Marriage and Family therapist (California, USA).

I invite you to participate in my study, which involves ***stress reduction in parents of children with Autism Spectrum Disorder (ASD)***, and the relationship to empathy and parental characteristics. Managing the different stressors of life can be challenging for everyone, yet studies show that many parents of children with ASD experience extremely high stress. In this study, I will explore an easy-to-use, self-applied stress reduction technique, which I hope will work for you. Your participation will inform researchers and clinicians on this stress reduction strategy and its possible effects on other areas of your life.

Participation eligibility: If you are a healthy parent of a child diagnosed with ASD, your child with ASD is 12 years old or younger, and you have access to a computer, the Internet, and are able to receive text messages on your phone please apply!

What will the study include?

- Participation from home
- Filling out questionnaires online, on three occasions, 20-30 minutes each time.
- Learning the technique during an online meeting, 30-60 minutes.
- Practicing the technique daily for a few minutes, for two weeks.
- Practicing the technique daily for a few minutes, for an additional four weeks.

Compensation: For your participation, you will be compensated with up to 150NIS:

- 100 NIS in cash (via Bit) or as a gift card (your choice), delivered after completion of the week 2 questionnaires.
- A 50 NIS in cash (via Bit) or as a gift card (your choice) delivered after additional four weeks and completion of the week 6 questionnaires.

Confidentiality promised! New participants accepted through August, 2020.

To participate in this study and to ask any questions, please contact the researcher:

Hadas Keppel, PhD candidate, Infant and Early Childhood Development, School of Psychology, Fielding Graduate University, CA, USA

Developmental Psychologist (Israel); Marriage and Family Therapist (CA, USA)

E-mail: Hkeppel@email.fielding.edu ; Tel: XXX

Appendix V

הזמנה להשתתף במחקר: הפחתת לחץ (סטרס) של הורים לילדים המאובחנים עם הפרעה על רצף האוטיזם

שלום,

שמי הדס קפל. אני סטודנטית לדוקטורט באוניברסיטת פילדינג בארה״ב (Fielding Graduate University, CA, USA), פסיכולוגית התפתחותית (ישראל) ומטפלת משפחתית (קליפורניה, ארה״ב).

אני מזמינה אותך להשתתף במחקר המערב **הפחתת לחץ (סטרס) של הורים לילדים המאובחנים עם הפרעה על רצף האוטיזם, והקשר לאמפתיה ומאפיינים הוריים.** התמודדות עם לחצי החיים יכול להקשות על כל אחד, אולם מחקרים מראים שהורים רבים לילדים על רצף האוטיזם חווים רמות לחץ גבוהות במיוחד. במחקר הנוכחי אבדוק שיטה להפחתת לחץ (סטרס). השיטה קלה לשימוש ומבוצעת באופן עצמאי. אני מקווה שהשיטה תתאים לך! השתתפותך תתרום לידע מחקרי וטיפולי הנוגע לשיטת הפחתת הלחץ הנחקרת, ועל השלכות אפשריות של הפחתת הלחץ על תחומי חיים נוספים.

יכולים להשתתף: אם את/ה הורה בריא לילד המאובחן עם הפרעה על רצף האוטיזם, גיל הילד/ה המאובחן/ת עם הפרעה על רצף האוטיזם הוא עד 13 שנה, ויש לך גישה למחשב, לאינטרנט, ויכולת לקבל הודעות טקסט בטלפון – אשמח אם תיצרי/תיצור קשר להשתתף במחקר!

על הדרישות במהלך ההשתתפות:

- השתתפות מהבית
- מילוי שאלונים דרך האינטרנט, בשלושה מועדים שונים, 30-20 דקות כל פעם.
- למידת השיטה להפחתת הלחץ במהלך פגישה אחת בת 60-30 דקות. הפגישה תערך איתי דרך האינטרנט.
- יישום השיטה הנלמדת למשך מספר דקות מדי יום, במשך שבועיים.
- יישום השיטה הנלמדת למשך מספר דקות מדי יום, למשך חודש נוסף.

תמורה להשתתפות במחקר: התמורה הנה עד 150 ש״ח.

- 100 ש״ח בכרטיס מתנה או דרך אפליקציית ביט (bit), לבחירתך, בתום השבועיים הראשונים להשתתפות, ולאחר מילוי השאלונים במועד זה.
- 50 ש״ח בכרטיס מתנה או דרך אפליקציית ביט (bit) לבחירתך, בתום ארבעה שבועות נוספים להשתתפות, ולאחר מילוי השאלונים במועד זה.

סודיות מובטחת! תקופת ההצטרפות למחקר הנה עד אוגוסט 2020.

ההשתתפות אפשרית בעברית ובאנגלית.

להשתתפות במחקר, ובכל שאלה, נא ליצור קשר עם החוקרת: הדס קפל, סטודנטית לדוקטורט, התכנית להתפתחות ילדים, ביה״ס לפסיכולוגיה, אוניברסיטת פילדינג, קליפורניה, ארה״ב. פסיכולוגית התפתחותית (ישראל), מטפלת משפחתית (קליפורניה, ארה״ב)

טלפון: 055-XXX-XXXX ; E-mail: Hkeppel@email.fielding.edu

Hadas Keppel, PhD Candidate, Infant and Early Childhood Development, School of Psychology, Fielding Graduate University, CA, USA

Developmental Psychologist (Israel); Marriage and Family Therapist (CA, USA)

Appendix W

Messages for Participants who Met Inclusion or Exclusion Criteria

The message that will appear on Qualtrics for applicants who meet the inclusion criteria:

"Thank you for applying to participate in this study. On the following screen, you will find the Informed Consent Form. After you sign the form to confirm your participation, you will be directed to the questionnaires. The questionnaires will be available for three days. Upon completion of the questionnaires, I will contact you via e-mail or phone to schedule a training meeting for you to learn the stress reduction strategy. "

"תודה שפנית להשתתף במחקר. במסך הבא תמצא/י את טופס ההסכמה מדעת להשתתפות במחקר. אחרי שתחתמי / תחתום על המסמך כדי לאשר את השתתפותך, תופיע סדרת השאלונים הראשונה. השאלונים יהיו פתוחים למענה במשך שלושה ימים. לארח שייענו, אהיה איתך בקשר באמצעות הדוא"ל או הטלפון, לקביעת מועד ללימוד השיטה להפחתת לחץ (סטרס)".

The message that will appear on Qualtrics for applicants who meet the exclusion criteria:

"Thank you for your interest in this study. I appreciate the time you invested in this. Unfortunately, for this specific study, I am targeting a different population. If you have any questions, please contact me at hkeppel@email.fielding.edu. Thank you, Hadas Keppel. "

"תודה שהבעת ענין להשתתף במחקר. אני מעריכה את הזמן שהקדשת לכך. למרבה הצער, למחקר הספציפי הזה, אני מחפשת אנשים בעלי מאפיינים אחרים. אם יש לך שאלות, בבקשה צור איתי קשר בדוא"ל hkeppel@email.fielding.edu תודה, הדס קפל."

Appendix X

Fielding Graduate University

Informed Consent Form

The Effects of a Stress Reduction Protocol on the Stress and Empathy Levels of Parents of Children with Autism Spectrum Disorder

NAME OF PARTICIPANT: _____

You have been asked to participate in a research study conducted by Hadas Keppel, a doctoral student in the School of Psychology, Infant and Early Child Development program, at Fielding Graduate University, Santa Barbara, CA. This study is supervised by Dr. Jenny Edwards. This research involves the study of the stress and empathy levels of parents of children with Autism Spectrum Disorder, and the relationship to parental characteristics. The study is part of Hadas Keppel's Fielding dissertation. You are being asked to participate in this study because you are the healthy parent of a child 12 years or younger diagnosed with Autism Spectrum Disorder, and you have either contacted Hadas Keppel to participate in this study, or were recommended by another person as someone who might be interested in participating in this study. Please be assured that the nominator will not be informed of your decision to either participate in this study or to decline participation.

Before you agree to participate in this research study, it is important that you read and understand the information provided in this Informed Consent Form. If you have any questions, please ask the researcher (Hadas Keppel) for clarification. Contact information can be found at the end of this Informed Consent Form.

Why Is This Study Being Done?

One goal of this study is to explore the efficacy of stress reduction techniques. For this purpose, participants will be divided into two groups, each receiving a different protocol to follow. One of these protocols might prove to be better than the other. You will only know if the protocol you practiced was the superior protocol on the completion of the study, after I analyze the results.

A second goal is to explore the relationship between other characteristics of parents, stress, and empathy.

How Many People Will Take Part in The Study?

Sixty participants will be part of the study.

What Is Involved in The Study?

If you agree to participate in this study, you will:

- Answer online questionnaires on three different occasions. The majority of the questions will be multiple choice; however, some will require you to write your answers.

- Participate in one live online training. During this training, I will share more about the study and teach you the stress reduction technique. You will have time to practice it and to ask questions.
- You will practice three times daily the stress reduction protocol taught, at a place and time of your choice and convenience. The protocol itself will require you to lightly touch one or more parts of your upper body, such as your arm or face. You will be requested to fill out a short daily journal (marking yes/no on most questions) to aid you during your two-week practice.
- You will receive one text after the training requesting a one-word reply. During the first two weeks, you will receive a daily text with one question and will answer by typing one number. During the following four weeks, you will receive a periodical text reminding you to practice your protocol. You will not need to reply to these texts.

Examples for multiple-choice statements and questions from the questionnaires: "I would describe myself as a pretty soft-hearted person"; "I prefer to be alone rather than with others"; "In the last month, how often have you felt nervous and "stressed"?

How Long Will I Be In The Study?

This study involves answering questionnaires, an online training and application of the stress reduction protocol. The breakdown follows:

- You will answer questionnaires on three occasions. First, you will fill out five questionnaires before the live online training. This will take approximately 30 minutes and can be done in segments for up to two days. Two weeks later, you will fill out four questionnaires, which will take approximately 13 minutes. Finally, you will fill out four questionnaires six weeks after starting your participation (four weeks after the second time you filled out questionnaires). This, too, will take approximately 13 minutes. The total time for answering the questionnaires on the three occasions is estimated to be up to 60 minutes.
- You will participate in a 30-minute individual online training.
- You will be asked to practice the stress reduction technique three times a day for a few minutes. The time is not expected to exceed 15 minutes daily. However, depending on the impact you feel, it could be shorter, or you might choose to continue for longer. The total time estimated is up to 210 minutes (3.5 h) during the first two weeks and a total of up to 690 minutes (11.5 h) for the six-week duration of the study.
- You will be asked to fill out a daily journal. This will aid your practice. The time dedicated should be 1-2 minutes daily. This will total 14 to 28 minutes in the first two weeks, and 35 to 70 minutes for six weeks.
- You will be asked to answer a daily text message. Estimated time: less than one minute. The total time dedicated to this will be up to 14 minutes in the first two weeks, and up to 35 minutes in the six weeks of the study.
- You might choose to view a demonstration of the protocol via YouTube as a reminder. This will not change your participation time, as you will apply the application while watching the video.

Thus, about 1.5 hours will involve answering questionnaires (on three occasions) and a training meeting on the technique. Additional time will be dedicated to applying the protocol for a total of up to 13 hours and 15 minutes for six weeks. Thus, the total time involved in participation is estimated to be between up to 14 hours and 45 minutes, over six weeks.

What Are The Risks Of The Study?

The risks to you are considered minimal. You might yawn or sigh, or your eyes might become watery. There is a small chance that you may experience some emotional discomfort during or after your participation. Should you experience such discomfort, please contact me for referral to services as needed.

New Findings:

If, during the course of this study, significant new information becomes available that may relate to your willingness to continue to participate, this information will be provided to you by the researcher.

What Are The Benefits To Taking Part In This Study?

You may experience a reduction of stress-related symptoms, such as improved sleep, a change in appetite, improved health measures (in the long term), and a positive change in your relationships.

What about Confidentiality and Protection?

Study related records will be held in confidence. Your consent to participate in this study includes consent for the researcher and supervising faculty, who may also see your data. Your research records may also be inspected by authorized representatives of the Fielding Graduate University, including members of the Institutional Review Board or their designees. They may inspect, and photocopy as needed, your records for study monitoring or auditing purposes. In addition, parts of your record may be photocopied.

The information you provide will be kept strictly confidential. The informed consent forms and other identifying information will be kept separate from the data. All hardcopy materials will be kept in a locked cabinet in my home to which only I have the key. All other documents will be saved in hidden, encrypted folders, with hidden text in my laptop computer to which only I have the password. Research assistants will not have access to your information, but rather to un-identified data only. Any records that would identify you as a participant in this study, such as informed consent forms, will be destroyed by me approximately three years after the study has been completed.

The results of this research will be published in my dissertation and possibly published in subsequent journals, books, and presentations.

The security of data transmitted over the Internet cannot be guaranteed; therefore, there is a slight risk that the information I send to you or you send to me via e-mail (if you decide to contact me via e-mail) will not be secure. No collection of data will be done via e-mail. Any other communication is not expected to present any greater risk than you would encounter in everyday life when sending and/or receiving information over the Internet.

Participation In Research Is Voluntary:

You are free to decline to participate or to withdraw from this study at any time by telling me, either during or after your participation, without negative consequences. Should you withdraw, your data will be eliminated from the study and will be destroyed, or will be used partially, depending on the timing of your withdrawal.

The researcher is also free to terminate the study at any time.

Compensation:

For your participation, you will be compensated with up to $40. You will receive $30 when completing the questionnaires sent to you two weeks after you started participating, AND an additional $10 when completing the questionnaires sent to you six weeks after you started participating in this study. You will choose between an Amazon gift card or a cash transfer via PayPal. You will receive the monetary PayPal transfer or the electronic gift cards within three days of completing the questionnaires online.

Study Results:

You may request a copy of the summary of the aggregate final results by indicating your interest at the end of this form.

You will be contacted with an opportunity to learn the stress reduction technique that was found to be most beneficial, *if* you were found to be in the group in which the less amount of stress reduction was found.

Additional Information:

If you have any questions about any aspect of this study or your involvement, please tell the researcher before signing this form. You may also contact the supervising faculty if you have questions or concerns about your participation in this study. The supervising faculty has provided contact information at the bottom of this form.

You may also ask questions at any time during your participation in this study.

If at any time you have questions or concerns about your rights as a research participant, contact the Fielding Graduate University IRB by email at irb@fielding.edu or by telephone at 805-898-4034.

Please sign this digital Informed Consent form, indicating you have read, understood, and agree to participate in this research. A copy of this form will be e-mailed to you to keep in your files. The Institutional Review Board of Fielding Graduate University retains the right to access to all signed informed consent forms.

If for some reason you signed it in person, two copies of this Informed Consent Form have been provided. Please sign both, indicating you have read, understood, and agree to participate in this research. Return one to the me and keep the other for your files. The Institutional Review Board of Fielding Graduate University retains the right to access to all signed informed consent forms.

I have read the above informed consent document and have had the opportunity to ask questions about this study. I have been told my rights as a research participant, and I voluntarily consent to participate in this study. By signing this form, I agree to participate in this research study. I shall receive a signed and dated copy of this consent.

_____
NAME OF PARTICIPANT (please print)

_____
SIGNATURE OF PARTICIPANT

_____
DATE

Jenny Edwards, PhD
jedwards@fielding.edu

Fielding Graduate University

2020 De La Vina Street

Santa Barbara, CA 93105-3814

805-687-1099

Hadas Keppel, MA
hkeppel@email.fielding.edu

Sunnyvale, CA

XXX-XXX-XXXX

Yes, please send a summary of the study results to the email address or postal address (optional) provided below:

NAME (please print)	E-mail Address (please print)
Street Address	City, State, Zip

Appendix Y

Fielding Graduate University

טופס הסכמה מדעת להשתתפות במחקר

השפעות פרוטוקול להפחתת לחץ (סטרס), על רמות הלחץ והאמפתיה של הורים לילדים המאובחנים על רצף האוטיזם

שם המשתתף או המשתתפת: _____

התבקשת להשתתף במחקר הנעשה ע״י הדס קפל, סטודנטית לדוקטורט בביה״ס לפסיכולוגיה, התכנית להתפתחות ילדים, באוניברסיטת פילדינג, סנטה ברברה, קליפורניה, ארה״ב. מחקר זה נעשה בהדרכת פרופ׳ ג׳ני אדוורדס. המחקר מתמקד ברמות הלחץ (סטרס) והאמפתיה של הורים לילדים במאובחנים על רצף האוטיזם, והקשר אל מאפיינים הוריים. המחקר הנו חלק מעבודת הדוקטורט של הדס קפל. התבקשת להשתתף במחקר משום שאת/ה ההורה של ילד או ילדה עד גיל 12 המאובחן/ת עם הפרעה על רצף האוטיזם, ומצב בריאותך טוב. פנית אל הדס קפל כדי להשתתף במחקר, או שהשתתפותך הומלצה ע״י אדם אחר שחשב/ה שיהיה לך ענין להשתתף במחקר. האדם שהמליץ על השתתפותך לא ייודע על החלטתך, בין אם חיובית או שלילית.

בטרם תתן/תתני הסכמתך להשתתף במחקר זה, חשוב לקרוא ולהבין את המידע הכלול בטופס ההסכמה מדעת. אם יש לך שאלה כלשהי, אנא צרי קשר עם החוקרת הדס קפל לקבלת מענה והבהרות. פרטי ההתקשרות מצויים בסוף טופס ההסכמה מדעת.

מהן מטרות המחקר?

מטרה אחת הנה לבחון יעילות של שיטות להפחתת לחץ (סטרס). למטרה זו, משתתפים יחולקו לשתי קבוצות, כל קבוצה תתבקש ליישם את השיטה בדרך שונה. יתכן שאמצא שאחת הדרכים היתה יעילה מהאחרת. תדע/י אם דרך היישום שלך היתה היעילה ביותר רק עם השלמת המחקר, כשאנתח את הממצאים. מטרה שניה היא לבחון את הקשר בין מאפייני הורים, לחץ ואמפתיה.

כמה אנשים ישתתפו במחקר?

שישים אנשים ישתתפו במחקר.

מה אצטרך לעשות במהלך המחקר?

אם תסכים/תסכימי להשתתף במחקר:

- תענ/ה לשאלונים דרך האינטרנט בשלושה מועדים שונים. רב השאלות הן שאלות רב-ברירה. אולם, חלקן ידרשו כתיבה.
- תשתתף/י בפגישת הדרכה על השיטה. הפגישה תערך באמצעות המחשב. במהלך הפגישה אספר על המחקר ואלמד את השיטה להפחתת הלחץ. תוכל/י להתאמן בשיטה ולשאול שאלות.

- תתבקש/י להתאמן על השיטה שלוש פעמים ביום, במקום ובזמן המתאימים לך, במשך שבועיים. השיטה עצמה מחייבת שתגע/י בעדינות באזור אחד או יותר בחלק הגוף העליון, כדוגמת הפנים או הזרוע. תתבקש/י למלא יומן מעקב יומי קצר (ברב השאלות תסמנ/י כן/לא) כדי לעזור לך במהלך האימון בשיטה.
- תקבל/י הודעת טקסט (SMS) אחת לאחר פגישת ההדרכה, עליו תתבקש/י לענות במילה אחת. במהלך השבועיים הראשונים למחקר, תקבלי הודעת טקסט (SMS) יומית עליה תתבקש/י לענות בהקלדת מספר אחד. בארבעת השבועות שלאחר מכן, תקבלי טקסט מעת לעת המזכיר לך להתאמן בשיטה. לא יהיה צורך להשיב להודעה זו.

דוגמאות לשאלות רב-ברירה מהשאלונים: "הייתי מתאר/ת את עצמי כרך/ת-לב למדי"; "אני מעדיף/ה להיות לבד מאשר להיות עם אחרים"; "בחודש האחרון, עד כמה הרגשת עצבנית ולחוץ/לחוצה?"

מה משך ההשתתפות במחקר?

במחקר כלולים מענה על שאלונים, השתתפות בפגישה באמצעות האינטרנט ללימוד השיטה להפחתת לחץ (סטרס) ויישום יומי של השיטה. להלן הפרוט:

- מענה לשאלונים בשלושה מועדים. ראשית, מילוי חמישה שאלונים לפני פגישת ההדרכה בשיטה. מילוי השאלונים מוערך ב-30 דקות ויכול לעשות לפרקים במהלך יומיים. כעבור שבועיים, תמלא/י ארבעה שאלונים. זמן המילוי מוערך ב20-25 דקות. לבסוף, שישה שבועות אחרי תחילת המחקר (ארבעה שבועות לאחר מילוי השאלונים בפעם השניה), תמלא/י שאלונים בפעם האחרונה. משך מילוי השאלונים מוערך ב-20-25 דקות. כך, הזמן הכולל שיוקדש למילוי השאלונים הוא 70-80 דקות.
- השתתפות בפגישה ללימוד השיטה להפחתת לחץ, דרך האינטרנט, למשך 45-60 דקות. אם מלבדך לא יהיו משתתפים נוספים, משך הסדנה יהיה קצר יותר, יתכן ש30 דקות.
- תתבקש/י להתאמן בשיטה להפחתת הלחץ שלוש פעמים ביום למשך מספר דקות. משך הזמן הכולל לא צפוי לעלות על 15 דקות יומיות. אולם, בהתאם להשפעה שתרגיש/י, יתכן שמשך זמן האימון יהיה קצר יותר, או שתבחר/י להמשיך להתאמן במשך יותר זמן. משך הזמן הכולל המוערך הוא עד 210 דקות (3.5 שעות) במהלך השבועיים הראשונים ועד 690 דקות (11.5 שעות) למשך ששת השבועות של המחקר.
- מילוי שאלון מעקב יומי, שיעזור לך לעקוב אחר יישום השיטה. זמן הרישום לא צפוי לעלות על 1-2 דקות ביום. סה"כ יוקדשו לכך בין 14 ל-28 דקות בשבועיים הראשונים, ובין 35 ל-70 דקות במשך שישה שבועות.
- מענה על הודעת טקסט יומית (במילה או מספר). זמן מוערך: פחות מדקה. סה"כ יוקדשו לכך 14 דקות בשבועיים הראשונים ועד 35 דקות במשך שישה שבועות.
- שיטת האימון תהיה זמינה לצפיה דרך YouTube. הצפיה היא בחירה, ולא תוסיף לזמן המוקדש, שכן במהלך הצפיה ניתן ליישם את השיטה.

לסיכום, בין שעה ו-40 דקות לבין שעתיים ועשרים דקות יוקדשו למענה לשאלונים (במצטבר בשלושה מועדים) ולהשתתפות בפגישה ללימוד השיטה. זמן נוסף יוקדש ליישום הפרוטוקול, סה"כ עד ל-13 שעות ו-15 דקות במשך שישה שבועות. כך, הזמן הכולל להשתתפות מוערך בין 14 שעות ו-35 דקות לבין 15 שעות ו-35 דקות במשך שישה שבועות.

מהם הסיכונים הכרוכים בהשתתפות במחקר?

הסיכונים נחשבים מזעריים. תגובת אפשריות הן פיהוקים, אנחות או רטיבות בעיניים. קיים סיכוי קטן לחוות חוסר נוחות רגשית במהלך ההשתתפות או אחריה. אם תחווי או תחווה חוסר נוחות שכזו, אנא צרי/צור איתי קשר כדי שאוכל להפנות אותך לקבלת סיוע מתאים.

ממצאים חדשים:

אם במהלך המחקר יוודע מידע חדש שעשוי להשפיע על הסכמתך להמשיך את השתתפותך במחקר, המידע יסופק לך ע"י החוקרת.

מה ארוויח אם אשתתף במחקר?

יתכן שתרגיש/י ירידה בסמפטומים הקשורים ללחץ, כדוגמת שיפור בשינה, שינוי בתאבון, שיפור במדדי בריאות אחרים (לאורך זמן), ושינוי חיובי במערכות יחסים.

מה בדבר חסיון וסודיות?

מסמכים הקשורים למחקר ישמרו בסודיות. הסכמתך להשתתף במחקר כולל אישור הן לחוקרת והן לחברת הסגל המנחה את הדוקטורט לצפות בנתונים. יתכן שגורמים מוסמכים אחרים מאוניברסיטת פלדינג או מוועדת האתיקה שלה, או שליחי וועדת האתיקה, יתבוננו בנתונים שתספק/י. כחלק מהליך בקרת המחקר הם עשויים לבחון את הנתונים או לצלמם בהתאם לנדרש.

המידע שתספק/י ישאר חסוי. טופס ההסכמה מדעת ומסמכים מזהים נוספים ישמרו בנפרד משאר הנתונים שיאספו. כל החומרים ישמרו בארון נעול בביתי. רק לי יש עותק מהמפתח. לעוזרי מחקר לא תהיה גישה למידע, אלא במידת הצורך, רק לנתונים ללא סימני זיהוי. כל מסמך שעשוי לזהות אותך כמשתתפ/ת במחקר, כדוגמת טפסי ההסכמה מדעת, יגרסו על ידי כשלוש שנים לאחר סיום המחקר.

ממצאי המחקר יפורסמו בעבודת הדוקטורט שלי ויתכן ויפורסמו בכתבי עת מדעיים, ספרים ומצגות.

לא ניתן להבטיח את אבטחת המידע המועבר דרך האינטרנט. לפיכך, קיים סיכוי קטן שהמידע שאעביר לך או שתשלח/י אלי בדואר האלקטרוני (אימייל) (אם תבחר/י ליצור איתי קשר דרך האימייל), לא יהיה מאובטח. לא יערך איסוף נתונים למחקר דרך הדואר האלקטרוני. כל מידע אחר שיועבר אינו צפוי להמצא בסיכון גדול יותר מהסיכון הרגיל שקיים כששולחים או מקבלים מידע באמצעות הדואר האלקטרוני.

ההשתתפות במחקר היא על בסיס התנדבותי:

באפשרותך לסרב להשתתף או להספיק השתתפותך בכל שלב ע"י כך שתאמרי לי, במהלך השתתפותך או אחריה, ללא תוצאות שליליות עבורך. אם תפסיק/י השתתפותך, המידע שסיפקת לא יכלל במחקר ויהרס, או ישמש בחלקו, כתלות בשלב בו פרשת מהמחקר.

גם אני רשאית להפסיק את המחקר בכל שלב.

תמורה להשתתפות במחקר:

כדי להודות לך על השתתפותך, תקבל/י סכום של עד 150 ש"ח. כרטיס מתנה בשווי של עד 200 ש"ח. תקבל/י 100 ש"ח לאחר מענה על השאלונים שישלחו אליך בתום שבועיים מתחילת ההשתתפות במחקר, ו- 50 ש"ח נוספים לאחר מענה על השאלונים שישלחו אליך שישה שבועות לאחר תחילת ההשתתפות במחקר. תוכלי לבחור בין העברת התודה הכספית ישירות לחשבונך דרך אפליקציית ביט, או לקבלה ככרטיס מתנה. כרטיס המתנה "עזריאלי

גיפטקארד״, ע״ס 100 ש״ח, ניתן למימוש במעל ל100 חנויות. כרטיס המתנה ״דרים כארד״ (Dream card) ניתן למימוש ב-18 חנויות הלבשה והנעלה. התמורה הכספית תועבר דרך ביט, או ככרטיס מתנה בדואר האלקטרוני, תוך שלושה ימים מסיום מילוי השאלונים באינטרנט.

ממצאי המחקר:

באפשרותך לבקש עותק מהממצאים הסופיים ע״י חתימה בראשי תיבות בסוף הטופס.

אצור איתך קשר ואציע ללמד אותך את השיטה שתמצא יעילה ביותר להפחתת לחץ ***אם*** יתברר שהיית בקבוצה בה נלמדה בשיטה שלבסוף התגלתה כפחות יעילה.

מידע נוסף:
אם יש לך שאלות על כל היבט של המחקר, בבקשה אימר/י לי לפני החתימה על מסמך זה. באפשרותך גם ליצור קשר עם חברת הסגל המנחה את הדוקטורט על המחקר אם יש לך שאלות או דאגות הקשורות להשתתפותך במחקר. פרטי ההתקשרות של חברת הסגל המנחה את הדוקטורט מצויים בסוף המסמך.
כמו כן, ניתן לפנות בשאלות בכל שלב במהלך ההשתתפות במחקר.

בכל שלב, אם יש לך שאלות או חששות הקשורות בזכויותיך במשתתף/ת במחקר, צור/צרי קשר עם וועדת האתיקה של אוניברסיטת פילדינג בדואר האלקטרוני irb@fielding. edu או בטלפון 805-898-4034 (ארה״ב).

אנא חתום/חיתמי על טופס ההסכמה מדעת האלקטרוני. חתימתך מעידה כי קראת, הבנת והסכמת להשתתף במחקר. עותק מההסכם ישלח אליך באמצעות הדואר האלקטרוני לשימושך. וועדת האתיקה של אוניברסיטת פילדינג שומרת לעצמה את זכות הגישה לכל מסמכי ההסכמה מדעת.

אם מסיבה כלשהי חתמת על המסמך בנוכחות החוקרת, קיבלת שני עותקים מהטופס. אנא חתום/חיתמי על שניהם כעדות לכך שקראת, הבנת והסכמת להשתתף במחקר. עותק אחד יש להשיב לחוקרת, ואת השני שמור/שימרי לשימושך. וועדת האתיקה של אוניברסיטת פילדינג שומרת לעצמה את זכות הגישה לכל מסמכי ההסכמה מדעת.

קראתי את טופס ההסכמה מדעת שלעיל והיתה לי ההזדמנות לשאול שאלות בנוגע למחקר. זכויותיי כמשתתף/משתתפת במחקר נמסרו לי ואני מתנדב/מתנדבת להשתתף במחקר. על ידי חתימה על טופס זה, אני מסכים/מסכימה להשתתף במחקר. אקבל עותק חתום ומתוארך של הסכם זה.

שם ומשפחה (בכתב קריא): _____

חתימה: _____ תאריך: _____

הדס קפל
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ד״ר ג׳ני אדוורדס
Jenny Edwards, PhD
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מודיעין-מכבים-רעות
XXXXXX

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805-687-1099

כן, אבקש לשלוח לי עותק של ממצאי המחקר לכתובת הדואר האלקטרוני או לכתובת הרשומה מטה (לבחירה):

שם: _____ כתובת דוא"ל: _____

כתובת למשלוח

רחוב ומספר בית: _____ עיר ומיקוד: _____