

# Annual Review of Psychology Self-Compassion: Theory, Method, Research, and Intervention

#### Kristin D. Neff

Department of Educational Psychology, University of Texas at Austin, Austin, Texas, USA; email: kneff@austin.utexas.edu

Annu. Rev. Psychol. 2023. 74:193-218

First published as a Review in Advance on August 12, 2022

The *Annual Review of Psychology* is online at psych.annualreviews.org

https://doi.org/10.1146/annurev-psych-032420-031047

Copyright © 2023 by the author(s). This work is licensed under a Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See credit lines of images or other third-party material in this article for license information.

# ANNUAL CONNECT

#### www.annualreviews.org

- · Download figures
- · Navigate cited references
- Keyword search
- Explore related articles
- · Share via email or social media

# **Keywords**

self-compassion, compassion, mindfulness, resilience, well-being

#### **Abstract**

Self-compassion refers to being supportive toward oneself when experiencing suffering or pain—be it caused by personal mistakes and inadequacies or external life challenges. This review presents my theoretical model of selfcompassion as comprised of six different elements: increased self-kindness, common humanity, and mindfulness as well as reduced self-judgment, isolation, and overidentification. It discusses the methodology of self-compassion research and reviews the increasingly large number of empirical studies that indicate self-compassion is a productive way of approaching distressing thoughts and emotions that engenders mental and physical well-being. It also reviews research that dispels common myths about self-compassion (e.g., that it is weak, selfish, self-indulgent or undermines motivation). Interventions designed to increase self-compassion, such as compassion-focused therapy and mindful self-compassion, are discussed. Finally, the review considers problematic issues in the field, such as the differential effects fallacy, and considers limitations and future research directions in the field of selfcompassion research.



Contents	
INTRODUCTION	194
WHAT IS SELF-COMPASSION?	194
THE ELEMENTS OF SELF-COMPASSION	195
Self-Kindness Versus Self-Judgment	195
Common Humanity Versus Isolation	196
Mindfulness Versus Overidentification	196
RESEARCH ON SELF-COMPASSION	196
THE METHODOLOGY OF SELF-COMPASSION RESEARCH	197
Self-Report Measures of Self-Compassion	197
Other Models and Measures of Self-Compassion	198
Experimental Methodologies	199
SELF-COMPASSION AND WELL-BEING	199
SELF-COMPASSION VERSUS SELF-ESTEEM	200
COMMON MISGIVINGS ABOUT SELF-COMPASSION	201
Self-Compassion Makes One Strong, Not Weak	202
Self-Compassion Leads to Health, Not Self-Indulgence	202
Self-Compassion Is Not Selfish and Helps One Care for Others	203
Self-Compassion Enhances Rather than Undermines Motivation	204
SELF-COMPASSION INTERVENTIONS	205
Compassion-Focused Therapy	205
Mindful Self-Compassion	206
ISSUES, LIMITATIONS, AND FUTURE DIRECTIONS IN THE	
FIELD OF SELF-COMPASSION RESEARCH	207
The Differential Effects Fallacy	207
Norms and Clinical Cutoff Scores	209
The Specificity of Self-Compassion	209
Sociocultural Differences in Self-Compassion	210
CONCLUSION	211

#### INTRODUCTION

Self-compassion, which can be understood as compassion for the experience of suffering turned inward, is a productive way of approaching distressing thoughts and emotions that engenders mental and physical well-being. This review will define self-compassion according to my theoretical model, discuss the methodology of self-compassion research, provide a broad overview of existing research on self-compassion and well-being, and examine interventions designed to increase self-compassion. It will also consider issues, limitations, and new directions in the field of self-compassion studies.

#### WHAT IS SELF-COMPASSION?

Self-compassion refers to how we relate to ourselves in instances of perceived failure, inadequacy, or personal suffering. My initial operationalization of the construct (Neff 2003b) was based on compassion for others as broadly conceptualized in Buddhist philosophy (e.g., Brach 2003). From a Buddhist perspective, compassion is omni-directional and includes oneself as well as others. In

order to understand what self-compassion is, therefore, it helps to consider what occurs in the experience of compassion more generally. Goetz et al. (2010, p. 351) define compassion as "the feeling that arises when witnessing another's suffering and that motivates a subsequent desire to help." This feeling is warm and caring rather than cold and judgmental, wanting to help rather than harm. In order to experience compassion, we must be willing to turn toward suffering, as uncomfortable as it might be. This requires mindfulness so that we can be present with discomfort rather than avoiding or resisting it. Also central to compassion is a feeling of connection with others who are suffering rather than a sense of isolation from them. In fact, this is what differentiates compassion from pity, or feeling sorry for someone separate from ourselves.

The experience of compassion is similar when applied to our own suffering, whether it stems from failure, feelings of personal inadequacy, or life challenges more generally. It involves being present with our own pain, feeling connected to others who are also suffering, and understanding and supporting ourselves through difficult moments. Self-compassion can take a tender, nurturing form, especially when it is aimed at self-acceptance or soothing distressing emotions. However, it can also take a fierce, powerful, agentic form, especially when it is aimed at self-protection, meeting our important needs or motivating change (Neff 2021).

I have operationalized self-compassion as a multifaceted construct comprised of overlapping but conceptually distinct elements that can be loosely organized into three broad domains (Neff 2016): how people emotionally respond to suffering (with kindness or judgment), how they cognitively understand their predicament (as part of the human experience or as isolating), and how they pay attention to suffering (in a mindful or overly identified manner). The elements of self-compassion are separable and do not covary in a lockstep manner, but they do mutually impact one another. Put another way, self-compassion represents a dynamic system in which the various elements of self-compassion work together to alleviate suffering.

The construct of self-compassion is conceptualized as a bipolar continuum ranging from uncompassionate self-responding (UCS) to compassionate self-responding (CS) in moments of distress (Neff 2022). A bipolar continuum is comprised of qualitatively distinct opposites that range from -1 to 1 (Tay & Jebb 2018). Heat and cold are a prototypical bipolar continuum. One feature of a bipolar continuum is that observations can fall in a range on either side of the zero point, and in any moment of suffering one can display coldness (UCS) or warmth (CS) toward oneself or be at some neutral point in between.

#### THE ELEMENTS OF SELF-COMPASSION

### Self-Kindness Versus Self-Judgment

Most of us try to be kind and supportive toward our friends and loved ones when they feel badly about themselves or experience life challenges. We may voice words of warmth and understanding to let them know we care—perhaps even offering a physical gesture of affection such as putting a hand on their shoulder. We are often much harsher with ourselves, however, saying unkind and judgmental things that we would never say to a friend. With self-compassion, however, we take a benevolent and supportive attitude rather than condemning ourselves coldly. We acknowledge our shortcomings while caring for ourselves regardless. This type of self-acceptance decreases feelings of unworthiness.

Self-kindness involves more than ending self-criticism, however. It involves actively showing concern for our distress. We try to ease our discomfort if we can, not because we're inadequate as we are, but because we care. Self-kindness involves being emotionally available when life becomes difficult. It means that we are moved by our own pain, stopping to say, "This is really hard right now. How can I care for myself in this moment?" When we respond to ourselves with warmth,

we feel validated, supported, and encouraged, in a similar manner to how we feel when we receive kindness from another.

# **Common Humanity Versus Isolation**

The sense of common humanity that is inherent to self-compassion helps us to feel connected to, rather than separate from, others. When we fail or make mistakes, we tend to irrationally feel like everyone else is just fine and we are the only ones who have blown it. This is not a logical process, but an emotional reaction that narrows our understanding and distorts reality. And even when our struggles stem from difficult life circumstances that we don't blame ourselves for, we tend to feel that somehow everyone else is having an easier time of it. We react as if something has gone wrong and forget that part of being human means facing challenges and being vulnerable. This feeling of abnormality creates a frightening sense of disconnection and loneliness that exacerbates our suffering.

With self-compassion, however, we recognize that life challenges are part of being human, an experience we all share. In fact, our struggles are what make us card-carrying members of humankind. The element of common humanity also helps to distinguish self-compassion from self-pity. Compassion is, by definition, relational. It implies a basic mutuality in the experience of suffering, and it springs from the acknowledgment that the human experience is imperfect. When we're in touch with our humanity, we remember that everyone experiences suffering. The triggers are different, the circumstances are different, the degree of pain is different, but the experience of imperfection is shared. When we remember our common humanity, we feel less isolated and alone.

#### Mindfulness Versus Overidentification

In order to have compassion for ourselves we need to be willing to turn toward our own pain, to acknowledge it mindfully. Mindfulness is a type of balanced awareness that neither avoids nor exaggerates the discomfort of our present-moment experience (Shapiro et al. 2006). We cannot show ourselves compassion if we don't acknowledge we're in pain. At the same time, if we fight and resist the fact that we're suffering, our attention may become so absorbed by our pain that we cannot step outside ourselves and adopt the perspective needed to care for ourselves. We may become overly identified with our negative thoughts or feelings and be swept away by our aversive reactions. This type of rumination narrows our focus and exaggerates implications for self-worth (Nolen-Hoeksema et al. 2008). Not only did I make a mistake, "I am a mistake." Not only did something horrible happen, "My life is horrific." Overidentification tends to reify our moment-to-moment experience so that we perceive transitory events as definitive and permanent. With mindfulness, however, we recognize that our negative thoughts and feelings are just that—thoughts and feelings—which helps us to be less absorbed by and identified with them. We have the perspective necessary to extend compassion for our difficulties. For this reason, mindfulness is the pillar on which self-compassion rests.

#### RESEARCH ON SELF-COMPASSION

Research on self-compassion has grown at an exponential rate since I first published my operational definition of the construct (Neff 2003b) and scale to measure it—the Self-Compassion Scale (SCS; Neff 2003a)—almost 20 years ago. There are now over 4,000 journal articles and dissertations focused on the topic (see **Figure 1**), with new studies being published every day. These studies span a vast range of topics, and I will only be able to discuss a small subset of them here.

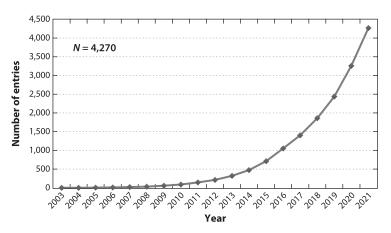


Figure 1

Publications focused on self-compassion, 2003–2021. Figure based on a Google Scholar search (including articles, books, and dissertations) of entries with "self-compassion" in the title.

#### THE METHODOLOGY OF SELF-COMPASSION RESEARCH

Most research on self-compassion has relied on self-reports of trait self-compassion as measured by instruments such as the SCS (Neff 2003a). This research tends to be cross-sectional, although more longitudinal research is also being done. There is also an increasing amount of research being conducted with experimental methodologies involving self-compassion training or brief mood inductions.

# **Self-Report Measures of Self-Compassion**

The SCS (Neff 2003a) is the most common method of examining self-compassion via self-report, and it has been translated into at least 22 different languages (Tóth-Király & Neff 2021). It is a 26-item measure that is designed to measure self-compassion as I have defined it (Neff 2003b). Even though self-compassion is a state of mind, the SCS measures trait levels of the general tendency to respond self-compassionately in moments of personal inadequacy and failure or external life challenges. It is a straightforward assessment of how often people engage in the various thoughts, emotions, and behaviors that align with the different dimensions of self-compassion. Sample items are self-kindness ("I try to be loving towards myself when I'm feeling emotional pain"), self-judgment ("I'm disapproving and judgmental about my own flaws and inadequacies"). common humanity ("When things are going badly for me, I see the difficulties as part of life that everyone goes through"), isolation ("When I think about my inadequacies it tends to make me feel more separate and cut off from the rest of the world"), mindfulness ("When I'm feeling down I try to approach my feelings with curiosity and openness"), and overidentification ("When something upsets me I get carried away with my feelings"). Responses are given on a scale of 1 (almost never) to 5 (almost always). Because self-compassion is conceptualized as a bipolar continuum ranging from UCS (self-judgment, isolation, and overidentification) to CS (self-kindness, common humanity, and mindfulness). UCS subscale items are reverse coded so that higher scores indicate a relative lack of negative self-responding.

There is ample evidence for the reliability and validity of the SCS (see Neff & Tóth-Király 2022a for a review). The SCS demonstrates good discriminant validity: It is not significantly associated with social desirability (Neff 2003a) and can be empirically differentiated from self-esteem (Neff & Vonk 2009), self-criticism (Neff 2003a), and neuroticism (Neff et al. 2018b).

Confirmatory factor analysis (CFA) was originally used to examine the factor structure of the SCS (Neff 2003a), and marginally adequate fit was found for a higher-order model and a sixfactor correlated model, justifying the use of the SCS as a total score or else as six subscale scores. Support for a higher-order model has been inconsistent, however (e.g., Neff et al. 2017, Williams et al. 2014). Some researchers using CFA have found that the SCS forms two factors representing CS and UCS (e.g., Brenner et al. 2017, Costa et al. 2015). Support for a two-factor solution to the SCS has also been inconsistent (e.g., Neff et al. 2017, 2019). I have argued that a bifactor approach combined with exploratory structural equation modeling (ESEM) offers the most theoretically coherent way to examine the SCS, given that the six components are thought to operate as a multidimensional system (Neff & Tóth-Király 2022a). Support for this model has been quite consistent. In a large international collaboration (Neff et al. 2019), bifactor ESEM and CFA were used to examine the factor structure of the SCS in 20 diverse samples (N = 11,685), and support was found in every sample for use of six subscale scores representing the six components or a total self-compassion score, but not for use of two separate scores representing CS and UCS. Moreover, 95% of the reliable variance could be attributed to a general factor (see Rakhimov et al. 2022 for an independent replication of these findings). Toth-Király & Neff (2021) found that an ESEM bifactor model of a single general factor of self-compassion and six specific factors was invariant across cultures. The SCS demonstrated configural, weak, strong, strict, and latent variance-covariance across 18 samples from 12 different countries. The use of an SCS total score rather than separate CS and UCS scores has also been supported using Rasch modeling (Finaulahi et al. 2021).

There are different formats of the SCS available, including the 12-item Self-Compassion Scale-Short Form (SCS-SF; Raes et al. 2011) that is mainly reliable for measuring overall selfcompassion levels, and a 17-item youth version designed for middle-school age populations that can assess a total score or six subscale scores (Neff et al. 2021a). We have also created the State Self-Compassion Scale (S-SCS; Neff et al. 2021b) that measures compassionate self-responding in the present moment. There is an 18-item long form of the S-SCS that can assess the six components of self-compassion and a 6-item short form that assesses overall state self-compassion. We are currently in the process of creating a revised version of the trait SCS (Neff & Tóth-Király 2022b) that contains an 18-item long form that can measure the six components of self-compassion and a 6-item short form to assess overall levels of trait self-compassion. The revision is being done to reduce the length of the long and short trait scales and to improve the factor loadings of items on their intended subscales. These loadings appear to be impacted by whether item stems refer to feelings of personal inadequacy or general life challenges, so most items in the revised version refer to both. For instance, "When I fail at something important to me, I try to keep things in perspective" was revised to read "When I am feeling inadequate or upset, I keep things in perspective." The revised version has improved psychometric properties as tested in a representative US sample compared to the original SCS, despite being shorter.

# Other Models and Measures of Self-Compassion

It should be noted that other measures of self-compassion exist in the literature based on different conceptualizations of the construct. For example, Social Mentality Theory (SMT; Gilbert 2005) posits that self-compassion is a state of mind that emerges from mammalian biosocial roles involving caregiving and care-seeking, while self-criticism emerges from evolved social roles that protect us from social threats. The forms of self-criticizing/attacking and self-reassuring scale (Gilbert et al. 2004) was developed to measure these two ways of relating to oneself and is a more appropriate measure for those working within the SMT framework. More recently, Gilbert and colleagues (2017) have developed a model of compassion for self, for others, and from others,

based on the broadly used definition of compassion as sensitivity to suffering with a commitment to try to alleviate it (Goetz et al. 2010). They developed the Compassionate Engagement and Action Scales based on this model, which include a self-compassion scale, a compassion to others scale, and a compassion from others scale with items tapping into engagement with distress and the motivation to alleviate that distress (e.g., thinking about and taking actions to help). Note that these scales do not measure kindness or common humanity as a feature of compassion.

Strauss et al. (2016) proposed that both self-compassion and compassion for others involve five key elements: (a) recognizing suffering; (b) understanding the universality of suffering in the human experience; (c) feeling empathy for the person suffering; (d) tolerating uncomfortable feelings in response to suffering, therefore remaining open to and accepting of the person suffering; and (e) having a motivation to alleviate suffering. Gu et al. (2020) have created a measure of compassion and self-compassion that assesses these five elements.

# **Experimental Methodologies**

Most research on self-compassion has been conducted using self-report measures such as the SCS, but researchers are increasingly using experimental methods to examine this mindset. Many scholars have examined how self-compassion training and interventions impact well-being (see Ferrari et al. 2019, Wilson et al. 2019). Another methodology involves experimentally inducing a self-compassionate state of mind to determine how it changes behavior. One of the first studies to attempt to induce a self-compassionate mind state was conducted by Leary et al. (2007), who asked participants to recall a past event that made them feel badly about themselves, then guided them through a series of writing prompts designed to evoke mindfulness, a sense of common humanity, and kindness. The study found that compared to control conditions, those in the self-compassionate writing condition experienced a greater decrease in negative affect. My lab recently created a self-compassion mind state induction that is closely aligned with my theoretical model (Neff et al. 2021b). Other researchers have used different approaches to evoke a self-compassionate mood, such as listening to guided meditations (e.g., Kirschner et al. 2019).

#### SELF-COMPASSION AND WELL-BEING

The empirical literature strongly supports the link between self-compassion and well-being (Neff et al. 2018a, Phillips & Hine 2021, Zessin et al. 2015). Research on self-compassion using experimental methods has yielded findings that converge with cross-sectional and longitudinal studies using the SCS, so the evidence for the link between self-compassion and well-being appears to be robust.

One of the most consistent findings in the literature is that greater self-compassion is linked to reduced psychopathology. Meta-analyses of studies conducted in adult and adolescent populations have found moderate to large effect sizes indicating an inverse association between self-compassion and negative mental states such as depression, anxiety, stress, and suicidal ideation (Ferrari et al. 2019, Hughes et al. 2021, MacBeth & Gumley 2012, Marsh et al. 2018, Suh & Jeong 2021). In longitudinal research, Stutts and colleagues (2018) found that self-compassion levels at baseline predicted lower depression, anxiety, and negative affect after 6 months, while Lee et al. (2021) found that increases in self-compassion were linked to reductions in psychopathology and loneliness over a 5-year time span.

Compared to self-compassion levels in the general population, individuals meeting criteria for mental health conditions such as bipolar disorder, generalized anxiety disorder, substance use disorder, or persecutory delusions or schizophrenia tend to have less self-compassion, and self-compassion levels are associated with the degree of mental health experienced in clinical

populations (see Athanasakou et al. 2020 for a review). A meta-analysis by Luo et al. (2021) found that self-compassion interventions reduced PTSD with medium effect sizes, and a meta-analysis by Turk & Waller (2020) found that self-compassion was associated with lessened eating pathology and reduced body image concerns with medium to strong effect sizes. A systematic review by Cleare and colleagues (2019) found strong evidence for the negative association of self-compassion with suicidal ideation and self-harm.

Self-compassion appears to reduce psychopathology through lessened automatic and negative thinking (Yip & Tong 2021), reduced avoidance of negative emotions (Yela et al. 2022), decreased entanglement with negative emotions (Miyagawa & Taniguchi 2020), and enhanced emotion regulation skills (Inwood & Ferrari 2018). Self-compassion also reduces shame, which lies at the core of many persistent negative mental states. For instance, trait self-compassion predicted less shame and lower levels of depression among smokers who developed lung cancer (Siwik et al. 2022) and rape survivors (Bhuptani & Messman 2021). One experimental study asked participants to think of an episode from their past in which they were ashamed of themselves, then asked them to write about the incident self-compassionately (Johnson & O'Brien 2013). Those in the self-compassionate writing condition (compared to an expressive writing control condition) reported significant decreases in shame and negative affect. By relating to suffering with warmth rather than harshness, and by remembering that suffering is part of the shared human condition, individuals feel less overwhelmed and isolated by their negative emotions and less likely to develop psychopathology.

Research indicates that self-compassion enhances positive mind states while lessening negative ones. A longitudinal study found that writing a self-compassionate letter to oneself over a 5-day period found not only decreased depression levels for 3 months but also increased happiness for 6 months (Shapira & Mongrain 2010). A meta-analysis by Zessin and colleagues (2015) found that self-compassion was linked to greater happiness, positive affect, and satisfaction with life with moderate to large effect sizes. Self-compassionate individuals have higher trait levels of hope, gratitude, curiosity, and vitality (Gunnell et al. 2017; Neff et al. 2007, 2018a). In a series of experimental studies, Zhang et al. (2019) found that enhancing self-compassion through mood inductions resulted in greater authenticity. Self-compassion is also linked to more autonomy, competence, and relatedness (Gunnell et al. 2017), suggesting that this supportive self-stance helps meet basic psychological needs (Deci & Ryan 1995). Although self-compassion is aimed at suffering, feelings of kindness, connectedness, and presence are satisfying and meaningful, which helps explain why self-compassion enhances positive mental states. The positive feelings generated appear to facilitate the broaden-and-build process (Fredrickson 2001), so that attention is freed up to focus on what is right in addition to what is wrong.

### SELF-COMPASSION VERSUS SELF-ESTEEM

Although self-compassion entails positive feelings, it is distinct from self-esteem. Self-esteem refers to how much one likes or values the self, based on congruence with personal standards or comparisons with others (Harter 1999). While self-esteem is important for good mental health, there are potential problems with the pursuit of self-esteem. High self-esteem requires standing out in a crowd—being special and above average. Attempts to enhance self-esteem have been linked to narcissism, inflated and unrealistic self-views, prejudice, and bullying behavior (see Crocker & Park 2004 for a review). Self-esteem involves evaluating personal performances ("How good am I?") in comparison to set standards ("What counts as good enough?") in domains of perceived importance ("It is important to be good at this"). This contingency means that state self-esteem can be unstable, changing according to our latest success or failure (Kernis 2005).

Self-esteem is a positive evaluation of self-worth, whereas self-compassion does not stem from judgments or evaluations. Instead, self-compassion is a way of relating to the ever-changing experience of who we are with kindness and acceptance—especially when we fail or feel inadequate. Self-compassion does not require feeling better than anyone else, it simply requires acknowledging the shared and imperfect human condition.

Research suggests that self-compassion offers similar mental health benefits as those of self-esteem, but without its potential downsides. In a large community survey that I conducted with a colleague (Neff & Vonk 2009), we directly compared self-compassion and self-esteem as predictors of well-being. We found that self-compassion was associated with more stability in state self-worth over an 8-month period (assessed 12 different times). It was also less contingent on appearance, performance, and social approval, and it was linked to less social comparison, public self-consciousness, self-rumination, anger, and closed-mindedness. Moreover, while self-esteem had a robust association with narcissism, self-compassion had no association with narcissism. These findings suggest that in contrast to those with high self-esteem, self-compassionate people are less focused on evaluating themselves, feeling superior to others, defending their viewpoints, or angrily reacting against those who disagree with them.

Self-compassion appears to provide greater ability to cope with stress than self-esteem does. One study asked participants to report their stress levels and mood twice a day for 14 days on their smartphones (Krieger et al. 2015) and found that their general levels of self-compassion, but not global self-esteem, predicted less negative affect in stressful situations. Self-compassion may also buffer the impact of low self-esteem on well-being. For instance, a longitudinal study with adolescents found that ninth-grade students with low self-esteem but high self-compassion were more psychologically healthy 1 year later than those who were also low in self-compassion (Marshall et al. 2015).

Self-esteem is often based on perceived attractiveness and comparisons of one's physical appearance with that of others (Harter 1999). However, self-compassion is linked to fewer social appearance comparisons, lower body dissatisfaction, and lower body shame (Turk & Waller 2020). Moffitt et al. (2018) found that enhancing self-compassion after a body image threat reduced body dissatisfaction and increased self-improvement motivation compared to a self-esteem enhancement condition. We recruited women with body image concerns to participate in a study that involved listening to the self-compassion meditations available on my website (https://self-compassion.org/) for 3 weeks, and we found that it reduced the extent to which women based their self-esteem on appearance compared to a waitlist control group (Albertson et al. 2015). Self-compassion appears to foster a more unconditional basis for self-worth than self-esteem.

#### COMMON MISGIVINGS ABOUT SELF-COMPASSION

Western culture has doubts about the value of self-compassion, and it generally does not promote it as a virtue. Common misgivings about self-compassion are that it is weak, self-indulgent, and selfish and will undermine motivation (Robinson et al. 2016). Across three studies, Chwyl and colleagues (2021) investigated the role that negative beliefs about self-compassion had on the tendency to be self-compassionate when responding to real-world or hypothetical events. Those with more negative beliefs were less self-compassionate, which in turn predicted less adaptive coping strategies. They also found that experimentally inducing people to hold positive, as opposed to negative, beliefs about self-compassion predicted self-compassionate responding 1 week later, suggesting that beliefs about self-compassion are malleable. This is good news, because the empirical evidence demonstrates that most of the fears people have about self-compassion are misplaced.

## Self-Compassion Makes One Strong, Not Weak

Some people are afraid that self-compassion will make them soft or weak. However, compassion can be fierce, taking a strong and resolute stand against harm that offers resilience in difficult circumstances. A meta-analysis by Ewert and colleagues (2021) examined the link between self-compassion and coping across 136 samples and found a positive association (medium effect size) with adaptive coping, including emotion-focused strategies such as acceptance or positive reframing as well as problem-focused strategies such as planning and providing instrumental support. This reflects the application of both tender acceptance and fierce action in difficult situations. They also found a negative association (large effect size) with maladaptive coping strategies such as denial or emotional avoidance.

Research indicates that self-compassion provides resilience when encountering a broad range of life challenges such as divorce (Sbarra et al. 2012), domestic violence (Allen et al. 2017), sexual assault (Hamrick & Owens 2019), natural disasters (Yuhan et al. 2021), raising a special needs child (Neff & Faso 2015), or prejudice (Vigna et al. 2018). There have been several studies indicating that self-compassionate individuals were better able to cope during the COVID-19 pandemic, experiencing less loneliness, anxiety, and depression as well as greater life satisfaction (e.g., Beato et al. 2021, Li et al. 2021). Self-compassion has also proven to be a powerful tool for resilience for those faced with health challenges such as chronic pain (Lanzaro et al. 2021), cancer (Siwik et al. 2022), or diabetes (Morgan et al. 2020). Sirois et al. (2015) found that self-compassionate individuals with chronic illness have more adaptive coping styles (e.g., positively reframing or accepting the situation) and fewer maladaptive coping styles (e.g., giving up or blaming oneself).

People who are self-compassionate after experiencing trauma are more resilient (Luo et al. 2021). Research indicates that self-compassion not only reduces posttraumatic stress disorder (PTSD) symptoms among trauma survivors but also enhances posttraumatic growth and learning (Winders et al. 2020). One study found that soldiers who were compassionate toward their traumatic experiences functioned better in daily life and had fewer symptoms of PTSD as a result of combat exposure (Dahm et al. 2015). In fact, having low levels of self-compassion was found to be a stronger predictor of developing PTSD symptoms than the level of combat exposure itself (Hiraoka et al. 2015), suggesting that how one relates to trauma is key to how debilitating the trauma is. When going into battle, literally or figuratively, being one's own ally is going to make an individual stronger and more resilient than treating oneself like the enemy.

# Self-Compassion Leads to Health, Not Self-Indulgence

People may assume that self-compassion means going easy on oneself and leads to self-indulgence. However, self-indulgence refers to engaging in behavior that is pleasurable in the short term but harmful in the long term. If people care about themselves and do not want to suffer, they will not harm themselves through self-indulgence; rather, they will do what they can to be healthy. Research shows that self-compassion is associated with health-promoting behaviors such as reduced smoking, healthy diet and exercise, seeking medical care, increased physical activity, safe sex, and less bedtime procrastination (Biber & Ellis 2019, Sirois et al. 2019, Wong et al. 2021). Phillips & Hine (2021) conducted a meta-analysis of 94 studies and found that self-compassion was associated with health-promoting behaviors with small to medium effect sizes. They also found it was linked to better physical health (with small effect sizes) in terms of outcomes like abdominal pain, skin rashes, earaches, and respiratory problems.

The increased physical health of self-compassionate individuals may be related to findings indicating that self-compassion enhances immune function. For instance, Bellosta-Batalla et al.

(2018) found that 8 weeks of mindfulness and compassion training increased self-reported health and immune function, as measured by immunoglobulin A. The link between self-compassion and health is also likely mediated through the nervous system: Self-compassion has been linked to greater vagally mediated heart rate variability and reduced cortisol levels (Kirschner et al. 2019). Finally, a meta-analysis found that self-compassion is linked to better quality sleep with medium effect sizes (Brown et al. 2021). When people care about themselves, they will care for themselves, and this leads to greater health.

# Self-Compassion Is Not Selfish and Helps One Care for Others

Some people fear that self-compassion is selfish and self-centered—that being kind and caring toward oneself automatically means being less caring toward others. In fact, the evidence suggests that self-compassion enhances interconnection with others (Lathren et al. 2021). We have generally found that the zero-order correlation between measures of self-compassion and otherfocused compassion is small (Neff & Pommier 2013, Neff et al. 2018a). This is primarily because many individuals are high in compassion for others but low in self-compassion, meaning that the two traits do not necessarily co-occur. However, self-compassion is linked to more perspective taking, forgiveness of others' imperfections, and greater feelings of similarity with others (Bruk et al. 2022, Miyagawa & Taniguchi 2022, Neff et al. 2018a). Self-compassion also enhances the quality of romantic relationships. We conducted a study of 100 heterosexual couples in long-term partnerships (Neff & Beretvas 2013) and found that participants described self-compassionate partners as being more emotionally connected, accepting, and autonomy supporting and as being less detached, controlling, and verbally or physically aggressive. Partners of self-compassionate individuals were also more satisfied in their relationships. Zhang and colleagues (2020) found that self-compassionate individuals are more accepting of both their own and their romantic partner's personal flaws. Path analysis indicated that participants' self-acceptance was positively linked to acceptance of their romantic partner, which was then positively linked to how accepted by their partner participants felt.

Research has found that self-compassionate college students have more compassionate goals in relationships with friends and roommates, meaning that they tend to provide social support and encourage interpersonal trust with relationship partners (Wayment et al. 2016). Self-compassionate people are more likely to help others in emergency situations, even when the situation is the other's fault (Welp & Brown 2014). In a study examining how people resolve conflict situations with mothers, fathers, and romantic partners, we found that self-compassionate individuals tended to compromise, while those lacking self-compassion tended to subordinate their needs to those of their partners (Yarnell & Neff 2013). We also found that self-compassionate people felt more authentic and experienced less turmoil when resolving conflicts and reported a greater sense of well-being in their relationships.

Research indicates that self-compassion is also an important resource for caregivers (Raab 2014). In a study of parents of children with autism, we found that higher levels of self-compassion were linked to less stress and depression as well as more life satisfaction and hope (Neff & Faso 2015). Among those caring for an elderly person with dementia, self-compassion was linked to lessened feelings of caregiver burden and more functional coping strategies for caregiver stress (Lloyd et al. 2019). Among professional caregivers such as therapists, doctors, nurses, educators, and first responders, greater self-compassion is associated with greater compassion satisfaction (the positive feelings experienced from one's work) as well as less caregiver fatigue, burnout, and stress (e.g., Babenko et al. 2019, Kotera et al. 2021, McDonald et al. 2021). Far from being selfish, giving oneself compassion provides the emotional resources needed to care for others.

## Self-Compassion Enhances Rather than Undermines Motivation

The most common block to self-compassion is the belief that it will undermine the motivation to improve. In fact, self-compassion is an important source of motivation that stems from care and the desire for the self's well-being rather than from fear of inadequacy. Instead of harsh selfcriticism, self-compassion uses warmth, encouragement, and constructive feedback to work toward personal goals. Self-compassion is negatively related to maladaptive perfectionism (excessive concern over mistakes) but is positively associated with high performance standards and personal initiative (Dundas et al. 2017, Suh & Chong 2022). Self-compassionate people aim high and try hard but also recognize and accept that they cannot always reach their targets. Research (e.g., Neff et al. 2005) indicates that self-compassion is positively associated with mastery goals (the intrinsic motivation to learn and grow) and negatively associated with performance goals (the desire to enhance one's self-image). Self-compassionate people are motivated to achieve, but for intrinsic reasons, not because they want to garner social approval. This supportive stance is also linked to greater self-confidence, a key ingredient to successful motivation. A meta-analysis by Liao and colleagues (2021) of 60 studies found a positive association between self-compassion and self-efficacy with a medium effect size. Self-compassion is also linked to a growth mindset, that is, the belief that one can become more intelligent with effort. Zhang et al. (2021) found that self-compassionate undergraduates in a statistics course believed they could increase their intelligence, and this in turn led to decreased statistics anxiety and improved course grades.

Self-compassionate motivation avoids the negative consequences that can be caused by attempting to motivate oneself with self-criticism. Self-compassionate people have less anxiety and engage in fewer self-handicapping behaviors such as procrastination than those who are self-critical (Sirois et al. 2019). Hope and colleagues (2014) conducted a longitudinal study that examined the impact of incoming college freshmen's self-compassion on their reactions to thwarted goal progress over their first school year. They found that higher levels of self-compassion predicted lower levels of negative affect on days when goals were not achieved. They also found that self-compassionate students were more concerned with whether their goals were personally meaningful than with goal success. Thus, self-compassion appears to help individuals relate to goals wisely, with less attachment to outcomes.

Self-compassion facilitates the ability to learn from failure rather than becoming debilitated by it. Miyagawa et al. (2020) found that after controlling for self-esteem, trait self-compassion correlated positively with the belief that failures are learning opportunities and part of life, and negatively with the belief that failures are something that must be avoided. They also found that experimentally inducing a self-compassionate response to a perceived weakness led to a stronger belief that failures were learning opportunities compared to controls. Research indicates that self-compassionate people have less fear of failure, and when they do fail, they are more likely to try again (Neely et al. 2009).

Self-compassionate motivation is effective. A series of studies by Zhang & Chen (2016) found that self-compassion predicted greater self-reported and observer-rated personal improvement after making mistakes. Breines & Chen (2012) gave undergraduates a difficult vocabulary test that they all did poorly on. One group of students were told to be self-compassionate about the failure, another was given a self-esteem boost, and one was given no instructions. The students were given the opportunity to study for a second test, and those who were compassionate toward their prior failure spent more time studying than those in the other two conditions. Moreover, study time was linked to test performance. A dissertation study I co-supervised by Ashley Kuchar (2022) developed a self-compassion training for NCAA athletic teams and found that it not only enhanced well-being but also improved self-rated and coach-rated athletic performance.

Research suggests that self-compassion increases the motivation to take personal responsibility for one's actions. For instance, Breines & Chen (2012) asked participants to recall a recent action they felt guilty about (e.g., cheating on an exam, lying to a romantic partner, saying something harmful) that still made them feel bad about themselves when they thought about it. Participants who were helped to be self-compassionate about their recent transgression reported being more motivated to apologize for the harm done and more committed to not repeating the behavior than controls. A similar study examined the link between students' self-compassion and acceptance of their own moral transgressions in two cultures—China and the United States (Wang et al. 2017). Results indicated that in both cultures, increased self-compassion was linked to a lessened tendency to be accepting of actions such as stealing or plagiarism or else displaying selfish behavior in a game task. So, while self-compassion increases acceptance of the self, it does not result in accepting bad behavior.

## **SELF-COMPASSION INTERVENTIONS**

Self-compassion is not just a fixed personality trait, it is a skill that can be learned and practiced. This is true for individuals in both clinical and nonclinical populations. Ferrari and colleagues (2019) conducted a meta-analysis of 27 randomized controlled trials (RCTs) of self-compassion interventions (many of which were short term) and found increases in self-compassion and reductions in psychopathology with medium to large effect sizes. Kirby et al. (2017) conducted a meta-analysis of 21 RCTs of longer-term interventions and found significant increases in self-compassion, compassion for others, mindfulness, life satisfaction, and happiness as well as significant decreases in depression, anxiety, and psychological distress with medium to large effect sizes. These results held for RCTs using both active and waitlist control groups.

One of the most common forms of self-compassion intervention is therapy. Helping clients to take a kinder and less judgmental approach to their suffering is a central goal of psychotherapy regardless of theoretical orientation and appears to be a key mechanism of therapeutic action (Galili-Weinstock et al. 2018). For instance, Schanche et al. (2011) found that both cognitive therapy and short-term dynamic psychotherapy increased self-compassion among individuals with Cluster C personality disorders and found that increases in self-compassion from early to late in therapy significantly predicted decreases in psychiatric symptoms, interpersonal problems, and personality pathology. An interesting question concerns the directionality of the link between self-compassion and psychopathology over the course of therapy. Krieger et al. (2016) used cross-lagged time analyses to examine the directionality of the link between self-compassion and depressive episodes in outpatients undergoing cognitive-behavioral therapy; this link was assessed directly after therapy as well as 6 and 12 months later. They found that increases in SCS scores predicted reduced depressive symptoms later, but depressive symptoms did not predict subsequent levels of self-compassion, suggesting a causal role for self-compassion in reducing psychopathology.

# **Compassion-Focused Therapy**

One popular therapeutic approach that is specifically designed to increase self-compassion is compassion-focused therapy (CFT; Gilbert 2010). CFT is based on evolutionary psychology, cognitive-behavioral therapy, and Tibetan Buddhist psychology, and it was originally developed for clinical populations with high shame and self-criticism (Gilbert & Procter 2006). CFT increases clients' awareness and understanding of automatic emotional reactions, such as self-criticism, that have evolved in humans over time and of how these patterns are often reinforced in early childhood. The key principles of CFT involve helping people to extend warmth and

understanding toward themselves; motivating them to care for their own well-being; and helping them to become sensitive to their own needs, tolerate personal distress, and reduce tendencies toward self-judgment. Although CFT is a type of individual therapy, it is sometimes practiced in a time-limited group therapy format, which can vary in length from 4 to 16 weeks (Gilbert 2010). CFT has extensive empirical support for its efficacy (see Craig et al. 2020 and Kirby 2017 for reviews). Research suggests that CFT is effective at increasing self-compassion and at treating individuals with a wide variety of clinical conditions, such as eating disorders, social anxiety, persistent pain, and schizophrenia (Wilson et al. 2019).

## Mindful Self-Compassion

In contrast to CFT, which is designed for clinical populations, around 10 years ago my colleague Chris Germer and I developed a self-compassion training course for nonclinical populations called mindful self-compassion (MSC; Germer & Neff 2019). We also founded a nonprofit organization to train teachers of MSC called the Center for Mindful Self-Compassion (CMSC; https://centerformsc.org/). MSC is an 8-week program (2.5 hour sessions each week plus a halfday retreat) that is intended to help individuals develop greater compassion for self and others. while enhancing mindfulness as a foundation for self-compassion. It includes written exercises, meditations, and informal practices designed to be used in daily life. The first study of MSC we conducted (Neff & Germer 2013) found that participation in MSC led to significant increases in self-compassion, mindfulness, compassion for others, and life satisfaction, and decreases in depression, anxiety, stress, and emotional avoidance compared to a waitlist control group. All gains were maintained at 6-month and 1-year follow-ups, suggesting that the skills learned in MSC are sustained over time. We found that how much time participants spent practicing self-compassion was linked to increased SCS scores. Interestingly, we also found that informal practices such as putting one's hand on one's heart and speaking kindly to oneself in times of struggle were just as impactful in learning self-compassion as formal meditation practice, suggesting that meditation is not necessary to learn the skill.

There have been additional RCTs of MSC. For instance, Jiménez-Gómez et al. (2022) examined MSC and mindfulness-based stress reduction (MBSR) among psychologist trainees. They found that both MSC and MBSR significantly increased mindfulness and decreased anxiety compared to a control group, although MSC was more effective than MBSR in increasing self-compassion. This is not surprising given the explicit focus on self-compassion in MSC. Torrijos-Zarcero and colleagues (2021) conducted an RCT that compared the effectiveness of MSC and CBT among individuals with chronic pain. They found that MSC was more effective than CBT in terms of self-compassion, pain acceptance, pain interference, catastrophizing, and anxiety. Friis et al. (2016) examined MSC for diabetes patients and found that they reported reduced depression and diabetes-related distress compared to a waitlist control group and also had clinically meaningful reductions in blood sugar levels. This reinforces the idea that self-compassion has benefits for both physical and psychological well-being.

There have been several uncontrolled studies of MSC that, although not as rigorous as RCTs, are informative about the types of populations for which MSC is effective. Serpa et al. (2020) examined the efficacy of MSC for veterans and found significant increases in self-compassion and happiness as well as significant decreases in depression, anxiety, pain interference, and use of pain medications. Delaney (2018) examined MSC among nurses and found that participation in the program increased self-compassion, compassion for others, mindfulness, resilience, and compassion satisfaction while decreasing secondary trauma and burnout. A study of MSC in China (Yeung et al. 2021) found significant improvements in self-compassion, compassion for

others, mindfulness, happiness, and satisfaction with life as well as reduced fear of self-compassion, depression, anxiety, and stress. Thus, the MSC program appears to be effective for increasing self-compassion and well-being in both Western and non-Western populations.

Bluth and colleagues (2016) adapted MSC for teens (MSC-T). MSC-T is a developmentally appropriate program that includes more hands-on activities that encourage participants' self-discovery of self-compassion. They found that participation in MSC-T increased self-compassion, mindfulness, and life satisfaction and decreased depression, anxiety, perceived stress, and negative affect. Campo and colleagues (2017) conducted MSC-T online with young cancer survivors and found significant increases in self-compassion and mindfulness, improved body image, posttraumatic growth, and decreases in social isolation, anxiety, and depression. Bluth et al. (2021) taught MSC-T to transgender teens and found that it significantly increased self-compassion, mindfulness, resilience, and life satisfaction and decreased depression, anxiety, and feelings of rejection by others. These findings are encouraging and suggest that it is possible to teach the skills of self-compassion at an early age, potentially altering the developmental trajectory of youths in a way that could produce benefits over a lifetime.

We have recently created a brief adaptation of MSC for healthcare professionals called self-compassion for healthcare communities (SCHC; Neff et al. 2020). This 6-week, 1 hour per week training was designed to fit in with the busy and stressful life of healthcare workers. It does not include meditation but relies on informal practices that can be done during the workday. We examined SCHC among participants at a children's hospital and found that compared to a waitlist control group, SCHC significantly increased self-compassion, mindfulness, compassion for others, and compassion satisfaction and decreased stress. We also found that the program significantly reduced secondary traumatic stress and burnout. Because of the efficacy of this low-dose training, CMSC offers a variety of brief MSC courses for other populations such as teachers, parents, couples, and business leaders.

# ISSUES, LIMITATIONS, AND FUTURE DIRECTIONS IN THE FIELD OF SELF-COMPASSION RESEARCH

The field of self-compassion studies has come a long way over the last two decades in terms of understanding how to empirically examine self-compassion, assess its benefits, and teach people how to be more self-compassionate. There is still a long way for the field to go, however. In this section I discuss what I perceive to be problematic issues in the field as well as current limitations and directions for future research.

## The Differential Effects Fallacy

One problematic trend in research on self-compassion concerns what I have termed the differential effects fallacy (Neff 2022). Because some psychometric studies (e.g., Brenner et al. 2017, Costa et al. 2015) have found that SCS subscales representing CS and UCS form two separate factors using CFA, researchers are increasingly conducting research on self-compassion using two separate CS and UCS scores rather than a total SCS score. It has been found that UCS and CS display different strengths of association with outcomes such as psychopathology (Muris & Petrocchi 2017), distress and well-being (Brenner et al. 2018), life satisfaction (Charzyńska et al. 2020), eating disorders (Bicaker & Racine 2022), and so on.

Muris and colleagues (e.g., Muris & Otgaar 2020, Muris et al. 2016) have argued that this pattern of findings means that CS and UCS are orthogonal, independent constructs that should be examined separately and that use of a total SCS score is invalid. These conclusions are presumed to be self-evident: Muris & Otgaar (2020) wrote that "there is irrefutable proof that the current

conceptualization of self-compassion and the way this trait is currently assessed with the SCS are inappropriate" (p. 1479) and that research on self-compassion as a unitary construct is "conducted by human beings who do not always operate in a logical, rational way but rather are driven by personal interests, cognitive biases, and social influences" (p. 1476).

Clearly, I disagree. The construct of self-compassion forms a bipolar continuum ranging from UCS to CS. There is no known logical, scientific, or psychometric principle that supports the claim that variation at opposite ends of a bipolar continuum must have the same strength of association with outcomes in order to be examined as a unitary construct. It is common for this to occur in fact: Variation in cold predicts frostbite more than warmth, and variation in warmth predicts heatstroke more than cold. This does not invalidate the construct of temperature.

Rather than simply interpreting these findings as illustrating the mechanisms of action of self-compassion (i.e., suggesting that variation at one end of the continuum more strongly impacts outcomes than variation at the other end), study authors who find that CS and UCS differentially predict outcomes typically assume these findings mean that the SCS must be used as two scores rather than one. Moreover, even though these studies have largely been based on cross-sectional data, they often conclude that findings have important clinical implications and suggest that UCS and CS should be targeted separately in intervention.

The growing trend of separating the SCS into two separate factors is problematic for several reasons. First, psychometric studies using appropriate methods for multidimensional constructs such as bifactor ESEM (Neff et al. 2019) find that factor loadings of SCS items do not support two distinct CS and UCS factors. The fact that 95% of the variance in SCS item responding can be explained by a single general factor also argues for the use of a total score. Another problem is that if scholars use each half of the SCS separately, this greatly reduces the variance that is measured in self-compassion. It is good psychometric practice to include items that describe the full range of possible response options along a continuum in order to maximize observed variance (Tay & Jebb 2018). Studies that use only CS items to examine the association between self-compassion and psychopathology under the mistaken assumption that self-compassion does not involve reduced UCS, for instance, might assume that self-compassion is not very relevant to coping with distress. Results would be misleading, because effect sizes found for self-compassion would appear smaller than they really are (Ferrari et al. 2019). In fact, Rakhimov et al. (2022) found that use of a total score was a more accurate predictor of depression, anxiety, and mental well-being than separate CS and UCS scores.

In addition, the advice given by some researchers to target CS and UCS in intervention separately does not make sense given that they change in tandem. The meta-analysis of self-compassion conducted by Ferrari et al. (2019) found that all six subscales of the SCS change simultaneously as a result of training. In our initial study of MSC (Neff & Germer 2013), we found that selfkindness increased by 36% and self-judgment decreased by 32%, common humanity increased by 34% and isolation decreased by 35%, and mindfulness increased by 21% and overidentification decreased by 33% (Neff 2016). Changes in S-SCS scores have even more relevance to examining self-compassion as a construct because they measure state responses to a single situation as opposed to the tendency to respond to different situations over time (Neff et al. 2021b). Miyagawa et al. (2022) examined change in state self-compassion after a mood induction in a Japanese sample and found that self-kindness increased by 30% and self-judgment decreased by 28%, common humanity increased by 24% and isolation decreased by 31%, and mindfulness increased by 24% and overidentification decreased by 29%. Mantzios et al. (2020) examined the effect of targeting state CS and UCS separately through an experimental manipulation. Participants were assigned to a brief intervention that either asked them to relate to a difficulty they were having with kindness, a sense of common humanity, and mindfulness (increasing CS), or else asked them to relate

to the difficulty without judgment, sense of isolation, or overidentification (reducing UCS). Total levels of state self-compassion increased for both groups equally.

Self-compassion represents movement along a continuum away from UCS toward CS. The result of being more compassionate is being less uncompassionate. This is the foundation on which therapies such as CFT and intervention programs such as MSC are based. The fact that CS and UCS differentially predict outcomes, though interesting, has limited practical implications for intervention, with one exception: It may be important for the establishment of clinical cutoff scores for clinicians who plan to use self-compassion as a diagnostic tool.

#### Norms and Clinical Cutoff Scores

The fact that UCS is a stronger predictor of psychopathology than CS suggests that it may be less useful to focus on increasing CS when treating outcomes such as anxiety and depression after a certain reduction in UCS has been reached. At the same time, it may be that continuing to increase CS even after UCS levels have been sufficiently reduced may yield continued mental health benefits, especially in terms of preventing relapse. It would be useful to know what level of self-compassion predicts vulnerability to psychopathology and what level is necessary to protect against psychopathology. The SCS was designed for nonclinical populations, and therefore clinical cutoff scores have not been established. This is a gap in the field that would be useful to address. The question of whether the establishment of clinical norms is best done with a total score, the six subscale scores, or even two separate CS and USC scores is yet to be answered.

Even though many therapists use the SCS with their clients, we do not really know what levels of self-compassion count as clinically significant or even what counts as low, medium, or high compared to establish norms. I was involved in a small study that tried to establish norms for the self-compassion scores of college students seeking therapy (Lockard et al. 2014). We found that self-compassion scores were lower in this population compared to students not seeking therapy, and that students with prior counseling experience had lower levels of self-compassion than those seeking help for the first time (though it was not clear if this was due to the severity of presenting problems or not). This was an important first step, but as far as I am aware there have been no large-scale studies attempting to establish norms or the clinical significance of SCS scores since this study was published. There have been thousands of studies of self-compassion in both clinical and nonclinical populations, and if a large culturally diverse data set were to be assembled, it might be possible to obtain values that clinicians could meaningfully interpret. These data would greatly benefit the field.

# The Specificity of Self-Compassion

Another limitation in the field of self-compassion research is that most studies are conducted using trait measures of self-compassion. In order to understand how self-compassion works to reduce suffering, however, it would be useful to conduct more research with state measures such as the S-SCS (Neff et al. 2021b) and examine how self-compassion operates in real time. There is a lot of noise in the trait SCS because it generalizes across situations, and use of the state measure allows for a more precise analysis of what happens when individuals relate to a current, specific situation with compassion. For instance, our lab is writing up a study using the S-SCS and the self-compassion mood induction we developed (Neff et al. 2021b) to examine how the various elements of self-compassion impact positive and negative affect (Neff et al. 2022b). We asked a sample of undergraduates to think of a current difficulty. We then asked them to write mindfully about the feelings evoked by the difficulty, to consider the common humanity of the difficulty, to write with kindness and a supportive attitude, and then to reflect on what they had written. We found that

total self-compassion levels increased and were linked to increased positive affect (r=0.40) and decreased negative affect (r=-0.32). When all six subscales were entered simultaneously into a regression equation, however, the findings were more complex. We found that reductions in overidentification were associated with less negative affect (r=-0.16) but also less positive affect (r=-0.13). This may be because in the moment, overidentification tends to exaggerate both positive and negative emotions. We also found that changes in self-kindness and self-judgment were equally strong predictors of change in positive and negative affect, indicating that these components do not merely represent positive and negative mood. These sorts of nuanced findings will eventually allow researchers to understand the complexity of how self-compassion works in greater depth.

In addition, we need to better understand how self-compassion operates in different contexts. Zuroff and colleagues (2021) created a domain-specific version of the SCS-SF that assesses trait levels of self-compassion in eight domains: academic or job performance, friendships, physical appearance, family relationships, finances, relationships at school/workplace, health, and romantic relationships. They found that individuals' self-compassion levels were not consistent across domains. It would be useful to examine whether the application of self-compassion also differs according to whether the cause of suffering is perceived to be internal or external. In situations where the cause is external, like being rear-ended by a car in traffic, it may be that people are more likely to give themselves compassion than in situations where the cause is internal, like rearending someone else with their car. Understanding how self-compassion interacts with the perceived source of suffering may help clinicians better understand how to help people adopt a more self-supportive stance.

# Sociocultural Differences in Self-Compassion

Finally, I feel that the field would benefit from more research on how sociocultural factors impact the level, functioning, and benefits of self-compassion. There has been little research examining how factors such as race, ethnicity, or socioeconomic status interact with self-compassion. although there has been some research on culture, age, and gender differences. One of the earliest studies my lab conducted focused on self-compassion levels among college students from the United States, Thailand, and Taiwan (Neff et al. 2008). Thai participants scored the highest, Taiwanese the lowest, and Americans fell in between. The results were interpreted as being due to the influence of Buddhism in Thai culture, which tends to promote self-compassion, and the influence of Confucianism in Taiwanese culture, which tends to promote self-criticism as a means of achievement (Heine 2003). We recently examined the psychometric properties of the SCS in multiple countries and compared latent mean levels of self-compassion across samples (Tóth-Király & Neff 2021). For community adults, it was found that Spanish, Italian, Hungarian, Brazilian, and Australian participants had the highest level of self-compassion; those from the United Kingdom, France, and Greece tended to have the lowest levels; and Americans and Germans fell in between. Among undergraduates, Korean students reported the highest level of self-compassion. This was somewhat surprising, given the influence of Confucianism in Korea as in Taiwan (Heine 2003). These seemingly contradictory findings indicate that caution should be used in interpreting results given that they may have been sample specific, and a great deal more research will be needed to determine if findings replicate.

Chio et al. (2021) conducted an interesting meta-analysis of data from 27 cultures, examining whether dialectical thinking might impact the experience of self-compassion. People in dialectical cultures (e.g., China, Japan) are said to be more likely to experience positive and negative emotions simultaneously because they accept the ambivalence of things. The study authors

found that the correlation between CS and UCS was lower in dialectical cultures. However, psychometric research shows that CS and UCS cannot be clearly distinguished with the trait SCS (Neff et al. 2019), making findings somewhat suspect. Also, Miyagawa et al.'s (2022) findings with state self-compassion suggest that UCS and CS are not experienced simultaneously when relating to a particular instance of suffering. Clearly more research will be needed to fully understand these findings.

Gender differences in self-compassion have also been examined. We conducted a meta-analysis of 88 study samples that showed that men reported slightly higher levels of self-compassion than women with a small effect size (Yarnell et al. 2015). This finding may be linked to the fact that women tend to internalize negative emotions more than men (Leadbeater et al. 1999). However, these differences do not appear to be a function of biological sex but rather of gender role socialization: Sex differences were found to be insignificant once gender role orientation was taken into account (Yarnell et al. 2019). Self-compassion involves meeting one's needs in order to alleviate suffering, and female gender norms of self-sacrifice work against this process, whereas male gender norms of entitlement encourage it. There is much more research to be done on how power inequality, marginalization, and other social factors may interact with the development and application of self-compassion.

Research suggests that people tend to become more self-compassionate as they get older (Neff & Pommier 2013, Neff & Vonk 2009). Lee et al. (2021) examined self-compassion levels over a 5-to 7-year timespan in a large community sample and found that self-compassion peaked around age 77. The increasing wisdom, life satisfaction, and self-acceptance often experienced by the elderly (Ardelt 1997) are probably bi-directionally related to increasing self-compassion with age. The wisdom that comes from maturity and experience allows for a kinder and more balanced stance toward oneself that recognizes the shared nature of human suffering, just as the ability to relate to life difficulties and to personal imperfection with compassion enhances life satisfaction and acceptance.

#### **CONCLUSION**

Self-compassion is not just a good idea, it is something one can do. The reason scholars like me care so much about this construct is because it is a powerful way to alleviate suffering that is accessible to anyone at any moment. It can be learned and practiced, and it is not rocket science. It simply requires taking the skill learned over the years of being compassionate to others and doing a U-turn. The thousands of studies that have been done on self-compassion have played an important cultural role in helping people overcome their fears of self-compassion—i.e., that it is soft, weak, selfish, and self-indulgent or will undermine motivation. This is a huge contribution in and of itself. The finer details of how, when, for whom, and in what situations self-compassion operates are currently being explored, and there is still much to discover. To my mind, what is most important is that people are more aware now (compared to 20 years ago) of how to relate to their difficulties in a healthy way that makes a real difference. The pedagogy of teaching self-compassion is well established (Germer & Neff 2019, Gilbert 2010), and self-compassion training is available worldwide through nonprofit organizations such as CMSC. This means that researchers interested in studying self-compassion can take self-compassion training and understand it from a first-person experiential as well as a third-person objective perspective (something I strongly encourage). Although the term begins with "self," self-compassion is a way of reducing the felt separation between individuals. I believe the study and practice of self-compassion has great potential to help engender a happier and more compassionate world for all.

#### DISCLOSURE STATEMENT

The author is not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

#### LITERATURE CITED

- Albertson ER, Neff KD, Dill-Shackleford KE. 2015. Self-compassion and body dissatisfaction in women: a randomized controlled trial of a brief meditation intervention. *Mindfulness* 6(3):444–54
- Allen AB, Robertson E, Patin GA. 2017. Improving emotional and cognitive outcomes for domestic violence survivors: the impact of shelter stay and self-compassion support groups. J. Interpers. Violence. https://doi.org/10.1177/0886260517734858
- Ardelt M. 1997. Wisdom and life satisfaction in old age. J. Gerontol. Ser. B Psychol. Sci. Soc. Sci. 52:15-27
- Athanasakou D, Karakasidou E, Pezirkianidis C, Lakioti A, Stalikas A. 2020. Self-compassion in clinical samples: a systematic literature review. Psychology 11:217–44
- Babenko O, Mosewich AD, Lee A, Koppula S. 2019. Association of physicians' self-compassion with work engagement, exhaustion, and professional life satisfaction. Med. Sci. 7(2):29
- Beato AF, da Costa LP, Nogueira R. 2021. "Everything is gonna be alright with me": the role of self-compassion, affect, and coping in negative emotional symptoms during coronavirus quarantine. Int. J. Environ. Res. Public Health 18(4):2017
- Bellosta-Batalla M, Ruiz-Robledillo N, Sariñana-González P, Capella-Solano T, Vitoria-Estruch S, et al. 2018. Increased salivary IgA response as an indicator of immunocompetence after a mindfulness and self-compassion-based intervention. *Mindfulness* 9:905–13
- Bhuptani PH, Messman TL. 2021. Self-compassion and shame among rape survivors. J. Interpers. Violence 37(17–18):NP16575–95
- Biber DD, Ellis R. 2019. The effect of self-compassion on the self-regulation of health behaviors: a systematic review. *J. Health Psychol.* 24(14):2060–71
- Bicaker E, Racine SE. 2022. Protection versus risk? The relative roles of compassionate and uncompassionate self-responding for eating disorder behaviors. *Eat. Behav.* 44:101592
- Bluth K, Gaylord SA, Campo RA, Mullarkey MC, Hobbs L. 2016. Making friends with yourself: a mixed methods pilot study of a mindful self-compassion program for adolescents. *Mindfulness* 7(2):479–92
- Bluth K, Lathren C, Clepper-Faith M, Larson LM, Ogunbamowo DO, Pflum S. 2021. Improving mental health among transgender adolescents: implementing mindful self-compassion for teens. *J. Adolesc. Res.* In press. https://doi.org/10.1177/07435584211062126
- Brach T. 2003. Radical Acceptance: Embracing Your Life with the Heart of a Buddha. New York: Bantam Books
- Breines JG, Chen S. 2012. Self-compassion increases self-improvement motivation. *Pers. Soc. Psychol. Bull.* 38(9):1133–43
- Brenner RE, Heath PJ, Vogel DL, Credé M. 2017. Two is more valid than one: examining the factor structure of the Self-Compassion Scale (SCS). J. Couns. Psychol. 64(6):696–707
- Brenner RE, Vogel DL, Lannin DG, Engel KE, Seidman AJ, Heath PJ. 2018. Do self-compassion and self-coldness distinctly relate to distress and well-being? A theoretical model of self-relating. *J. Couns. Psychol.* 65(3):346–57
- Brown L, Houston EE, Amonoo HL, Bryant C. 2021. Is self-compassion associated with sleep quality? A meta-analysis. *Mindfulness* 12(1):82–91
- Bruk A, Scholl SG, Bless H. 2022. You and I both: Self-compassion reduces self-other differences in evaluation of showing vulnerability. *Pers. Soc. Psychol. Bull.* 48(7):1054–67
- Campo RA, Bluth K, Santacroce SJ, Knapik S, Tan J, et al. 2017. A mindful self-compassion videoconference intervention for nationally recruited posttreatment young adult cancer survivors: feasibility, acceptability, and psychosocial outcomes. Support. Care Cancer 25(6):1759–68
- Charzyńska E, Kocur D, Działach S, Brenner RE. 2020. Testing the indirect effect of Type 1 diabetes on life-satisfaction through self-compassion and self-coldness. *Mindfulness* 11(11):2486–93

- Chio FHN, Mak WWS, Yu BCL. 2021. Meta-analytic review on the differential effects of self-compassion components on well-being and psychological distress: the moderating role of dialecticism on selfcompassion. Clin. Psychol. Rev. 85:101986
- Chwyl C, Chen P, Zaki J. 2021. Beliefs about self-compassion: implications for coping and self-improvement. Pers. Soc. Psychol. Bull. 47(9):1327–42
- Cleare S, Gumley A, O'Connor RC. 2019. Self-compassion, self-forgiveness, suicidal ideation, and self-harm: a systematic review. Clin. Psychol. Psychother. 26(5):511–30
- Costa J, Marôco J, Pinto-Gouveia J, Ferreira C, Castilho P. 2015. Validation of the psychometric properties of the Self-Compassion Scale. Clin. Psychol. Psychother. 23:460–68
- Craig C, Hiskey S, Spector A. 2020. Compassion focused therapy: a systematic review of its effectiveness and acceptability in clinical populations. Expert Rev. Neurother. 20(4):385–400
- Crocker J, Park LE. 2004. The costly pursuit of self-esteem. Psychol. Bull. 130:392-414
- Dahm KA, Meyer EC, Neff KD, Kimbrel NA, Gulliver SB, Morissette SB. 2015. Mindfulness, self-compassion, posttraumatic stress disorder symptoms, and functional disability in US Iraq and Afghanistan war veterans. 7. Trauma. Stress 28(5):460–64
- Deci EL, Ryan RM. 1995. Human autonomy: the basis for true self-esteem. In *Efficacy*, *Agency*, *and Self-Esteem*, ed. MH Kernis, pp. 31–49. New York: Plenum Press
- Delaney MC. 2018. Caring for the caregivers: evaluation of the effect of an eight-week pilot mindful self-compassion (MSC) training program on nurses' compassion fatigue and resilience. *PLOS ONE* 13(11):e0207261
- Dundas I, Binder PE, Hansen TG, Stige SH. 2017. Does a short self-compassion intervention for students increase healthy self-regulation? A randomized control trial. Scand. 7. Psychol. 58(5):443–50
- Ewert C, Vater A, Schröder-Abé M. 2021. Self-compassion and coping: a meta-analysis. Mindfulness 12(5):1063-77
- Ferrari M, Hunt C, Harrysunker A, Abbott MJ, Beath AP, Einstein DA. 2019. Self-compassion interventions and psychosocial outcomes: a meta-analysis of RCTs. Mindfulness 10(8):1455–73
- Finaulahi KP, Sumich A, Heym N, Medvedev ON. 2021. Investigating psychometric properties of the Self-Compassion Scale using Rasch methodology. *Mindfulness* 12(3):730–40
- Fredrickson BL. 2001. The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. Am. Psychol. 56(3):218–26
- Friis AM, Johnson MH, Cutfield RG, Consedine NS. 2016. Kindness matters: A randomized controlled trial of a mindful self-compassion intervention improves depression, distress, and HbA1c among patients with diabetes. *Diabetes Care* 39(11):1963–71
- Galili-Weinstock L, Chen R, Atzil-Slonim D, Bar-Kalifa E, Peri T, Rafaeli E. 2018. The association between self-compassion and treatment outcomes: session-level and treatment-level effects. J. Clin. Psychol. 74(6):849–66
- Germer CK, Neff KD. 2019. Teaching the Mindful Self-Compassion Program: A Guide for Professionals. New York: Guilford Press
- Gilbert P. 2005. Compassion: Conceptualizations, Research and Use in Psychotherapy. London: Routledge
- Gilbert P. 2010. Compassion Focused Therapy: Distinctive Features. London: Routledge
- Gilbert P, Catarino F, Duarte C, Matos M, Kolts R, et al. 2017. The development of compassionate engagement and action scales for self and others. J. Compassionate Health Care 4:4
- Gilbert P, Clarke M, Hempel S, Miles JN, Irons C. 2004. Criticizing and reassuring oneself: an exploration of forms, styles and reasons in female students. Br. J. Clin. Psychol. 43(1):31–50
- Gilbert P, Procter S. 2006. Compassionate mind training for people with high shame and self-criticism: overview and pilot study of a group therapy approach. Clin. Psychol. Psychother. 13(6):353–79
- Goetz JL, Keltner D, Simon-Thomas E. 2010. Compassion: an evolutionary analysis and empirical review. Psychol. Bull. 136(3):351–74
- Gu J, Baer R, Cavanagh K, Kuyken W, Strauss C. 2020. Development and psychometric properties of the Sussex-Oxford compassion scales (SOCS). Assessment 27(1):3–20
- Gunnell KE, Mosewich AD, McEwen CE, Eklund RC, Crocker PR. 2017. Don't be so hard on yourself! Changes in self-compassion during the first year of university are associated with changes in well-being. Pers. Individ. Diff. 107:43–48

- Hamrick LA, Owens GP. 2019. Exploring the mediating role of self-blame and coping in the relationships between self-compassion and distress in females following the sexual assault. *J. Clin. Psychol.* 75(4):766–79
- Harter S. 1999. The Construction of the Self: A Developmental Perspective. New York: Guilford Press
- Heine SJ. 2003. An exploration of cultural variation in self-enhancing and self-improving motivations. In *Cross-Cultural Differences in Perspectives on the Self*, ed. V Murphy-Berman, JJ Berman, pp. 118–45. Lincoln: Univ. Neb. Press
- Hiraoka R, Meyer EC, Kimbrel NA, DeBeer BB, Gulliver SB, Morissette SB. 2015. Self-compassion as a prospective predictor of PTSD symptom severity among trauma-exposed U.S. Iraq and Afghanistan war veterans. *J. Trauma. Stress* 28(2):127–33
- Hope N, Koestner R, Milyavskaya M. 2014. The role of self-compassion in goal pursuit and well-being among university freshmen. Self Identity 13(5):579–93
- Hughes M, Brown SL, Campbell S, Dandy S, Cherry MG. 2021. Self-compassion and anxiety and depression in chronic physical illness populations: a systematic review. *Mindfulness* 12(7):1597–610
- Inwood E, Ferrari M. 2018. Mechanisms of change in the relationship between self-compassion, emotion regulation, and mental health: a systematic review. *Appl. Psychol. Health Well-Being* 10(2):215–35
- Jiménez-Gómez L, Yela JR, Crego A, Melero-Ventola AR, Gómez-Martínez MÁ. 2022. Effectiveness of the Mindfulness-Based Stress Reduction (MBSR) versus the Mindful Self-Compassion (MSC) programs in clinical and health psychologist trainees. *Mindfulness* 13:584–99
- Johnson EA, O'Brien KA. 2013. Self-compassion soothes the savage EGO-threat system: effects on negative affect, shame, rumination, and depressive symptoms. J. Soc. Clin. Psychol. 32(9):939–63
- Kernis MH. 2005. Measuring self-esteem in context: the importance of stability of self-esteem in psychological functioning. *J. Pers.* 73:1569–605
- Kirby JN. 2017. Compassion interventions: the programmes, the evidence, and implications for research and practice. Psychol. Psychother. Theory Res. Practice 90(3):432–55
- Kirby JN, Tellegen CL, Steindl SR. 2017. A meta-analysis of compassion-based interventions: current state of knowledge and future directions. Behav. Therapy 48(6):778–92
- Kirschner H, Kuyken W, Wright K, Roberts H, Brejcha C, Karl A. 2019. Soothing your heart and feeling connected: a new experimental paradigm to study the benefits of self-compassion. *Clin. Psychol. Sci.* 7(3):545–65
- Kotera Y, Maxwell-Jones R, Edwards A-M, Knutton N. 2021. Burnout in professional psychotherapists: relationships with self-compassion, work-life balance, and telepressure. Int. J. Environ. Res. Public Health 18(10):5308
- Krieger T, Berger T, Grosse Holtforth M. 2016. The relationship of self-compassion and depression: cross-lagged panel analyses in depressed patients after outpatient therapy. *J. Affect. Disord.* 202:39–45
- Krieger T, Hermann H, Zimmermann J, Holtforth MG. 2015. Associations of self-compassion and global self-esteem with positive and negative affect and stress reactivity in daily life: findings from a smart phone study. Pers. Individ. Diff. 87:288–92
- Kuchar A. 2022. RESET: a brief self-compassion intervention with NCAA student-athletes. PhD Thesis, Univ. Texas Austin, Austin
- Lanzaro C, Carvalho SA, Lapa TA, Valentim A, Gago B. 2021. A systematic review of self-compassion in chronic pain: from correlation to efficacy. Span. 7. Psychol. 24:e26
- Lathren CR, Rao SS, Park J, Bluth K. 2021. Self-compassion and current close interpersonal relationships: a scoping literature review. Mindfulness 12(5):1078–93
- Leadbeater BJ, Kuperminc GP, Blatt SJ, Hertzog C. 1999. A multivariate model of gender differences in adolescents' internalizing and externalizing problems. Dev. Psychol. 35:1268–82
- Leary MR, Tate EB, Adams CE, Allen AB, Hancock J. 2007. Self-compassion and reactions to unpleasant self-relevant events: the implications of treating oneself kindly. *J. Pers. Soc. Psychol.* 92:887–904
- Lee EE, Govind T, Ramsey M, Wu TC, Daly R, et al. 2021. Compassion toward others and self-compassion predict mental and physical well-being: a 5-year longitudinal study of 1090 community-dwelling adults across the lifespan. *Transl. Psychiatry* 11:397

- Li A, Wang S, Cai M, Sun R, Liu X. 2021. Self-compassion and life-satisfaction among Chinese self-quarantined residents during COVID-19 pandemic: a moderated mediation model of positive coping and gender. Pers. Individ. Diff. 170:110457
- Liao KY-H, Stead GB, Liao C-Y. 2021. A meta-analysis of the relation between self-compassion and self-efficacy. Mindfulness 12(8):1878–91
- Lloyd J, Muers J, Patterson TG, Marczak M. 2019. Self-compassion, coping strategies, and caregiver burden in caregivers of people with dementia. Clin. Gerontol. 42(1):47–59
- Lockard AJ, Hayes JA, Neff KD, Locke BD. 2014. Self-compassion among college counseling center clients: an examination of clinical norms and group differences. 7. Coll. Couns. 17:249–59
- Luo X, Che X, Lei Y, Li H. 2021. Investigating the influence of self-compassion-focused interventions on posttraumatic stress: a systematic review and meta-analysis. *Mindfulness* 12(12):2865–76
- MacBeth A, Gumley A. 2012. Exploring compassion: a meta-analysis of the association between self-compassion and psychopathology. Clin. Psychol. Rev. 32:545–52
- Mantzios M, Koneva A, Egan H. 2020. When "negativity" becomes obstructive: a novel exploration of the two-factor model of the Self-Compassion Scale and a comparison of self-compassion and self-criticism interventions. Curr. Issues Pers. Psychol. 8(4):289–300
- Marsh IC, Chan SW, MacBeth A. 2018. Self-compassion and psychological distress in adolescents—a metaanalysis. Mindfulness 9(4):1011–27
- Marshall SL, Parker PD, Ciarrochi J, Sahdra B, Jackson CJ, Heaven PC. 2015. Self-compassion protects against the negative effects of low self-esteem: a longitudinal study in a large adolescent sample. *Pers. Individ. Diff.* 74:116–21
- McDonald MA, Meckes SJ, Lancaster CL. 2021. Compassion for oneself and others protects the mental health of first responders. *Mindfulness* 12(3):659–71
- Miyagawa Y, Niiya Y, Taniguchi J. 2020. When life gives you lemons, make lemonade: Self-compassion increases adaptive beliefs about failure. J. Happiness Stud. 21(6):2051–68
- Miyagawa Y, Taniguchi J. 2020. Self-compassion and time perception of past negative events. *Mindfulness* 11(3):746–55
- Miyagawa Y, Taniguchi J. 2022. Self-compassion helps people forgive transgressors: cognitive pathways of interpersonal transgressions. Self Identity 21(2):244–56
- Miyagawa Y, Tóth-Király I, Knox MC, Taniguchi J, Niiya Y. 2022. Development of the Japanese version of the State Self-Compassion Scale (SSCS-J). Front. Psychol. 12:779318
- Moffitt RL, Neumann DL, Williamson SP. 2018. Comparing the efficacy of a brief self-esteem and self-compassion intervention for state body dissatisfaction and self-improvement motivation. Body Image 27:67–76
- Morgan TL, Semenchuk BN, Ceccarelli L, Kullman SM, Neilson CJ, Kehler DS, et al. 2020. Self-compassion, adaptive reactions, and health behaviours among adults with prediabetes and diabetes: a scoping review. Can. 7. Diabetes 44(6):555–65.e2
- Muris P, Otgaar H. 2020. The process of science: a critical evaluation of more than 15 years of research on self-compassion with the Self-Compassion Scale. *Mindfulness* 11(6):1469–82
- Muris P, Otgaar H, Petrocchi N. 2016. Protection as the mirror image of psychopathology: further critical notes on the self-compassion scale. *Mindfulness* 7(3):787–90
- Muris P, Petrocchi N. 2017. Protection or vulnerability? A meta-analysis of the relations between the positive and negative components of self-compassion and psychopathology. Clin. Psychol. Psychother. 24(2):373–83
- Neely ME, Schallert DL, Mohammed SS, Roberts RM, Chen Y. 2009. Self-kindness when facing stress: the role of self-compassion, goal regulation, and support in college students' well-being. *Motiv. Emot.* 33:88– 97
- Neff KD. 2003a. Development and validation of a scale to measure self-compassion. Self Identity 2:223-50
- Neff KD. 2003b. Self-compassion: an alternative conceptualization of a healthy attitude toward oneself. Self Identity 2:85–102
- Neff KD. 2016. The Self-Compassion Scale is a valid and theoretically coherent measure of self-compassion. Mindfulness 7(1):264–74
- Neff KD. 2021. Fierce Self-Compassion: How Women Can Harness Kindness to Speak Up, Claim Their Power, and Thrive. New York: Harper Wave

- Neff KD. 2022. The differential effects fallacy in the study of self-compassion: misunderstanding the nature of bipolar continuums. *Mindfulness* 13:572–76
- Neff KD, Beretvas SN. 2013. The role of self-compassion in romantic relationships. Self Identity 12(1):78–98
- Neff KD, Bluth K, Tóth-Király I, Davidson O, Knox MC, Williamson Z, Costigan A. 2021a. Development and validation of the Self-Compassion Scale for youth. J. Pers. Assess. 103(1):92–105
- Neff KD, Faso DJ. 2015. Self-compassion and well-being in parents of children with autism. *Mindfulness* 6:938–47
- Neff KD, Germer CK. 2013. A pilot study and randomized controlled trial of the mindful self-compassion program. J. Clin. Psychol. 69(1):28–44
- Neff KD, Hseih Y, Dejitthirat K. 2005. Self-compassion, achievement goals, and coping with academic failure. Self Identity 4:263–87
- Neff KD, Knox MC, Long P, Gregory K. 2020. Caring for others without losing yourself: an adaptation of the Mindful Self-Compassion program for healthcare communities. *7. Clin. Psychol.* 76:1543–62
- Neff KD, Long P, Knox M, Davidson O, Kuchar A, et al. 2018a. The forest and the trees: examining the association of self-compassion and its positive and negative components with psychological functioning. Self Identity 17(6):627–45
- Neff KD, Pitsungkagarn K, Hseih Y. 2008. Self-compassion and self-construal in the United States, Thailand, and Taiwan. J. Cross-Cult. Psychol. 39:267–85
- Neff KD, Pommier E. 2013. The relationship between self-compassion and other-focused concern among college undergraduates, community adults, and practicing meditators. *Self Identity* 12(2):160–76
- Neff KD, Rude SS, Kirkpatrick K. 2007. An examination of self-compassion in relation to positive psychological functioning and personality traits. 7. Res. Pers. 41:908–16
- Neff KD, Tóth-Király I. 2022a. Self-Compassion Scale (SCS). In Handbook of Assessment in Mindfulness Research, ed. N Oleg, ON Medvedev, CU Krägeloh, RJ Siegert, NN Singh. Cham, Switz.: Springer. https://doi.org/10.1007/978-3-030-77644-2\_36-1
- Neff KD, Tóth-Király I. 2022b. The development and validation of the Self-Compassion Scale-Revised (long and short form). Work. Pap., Univ. Tex., Austin
- Neff KD, Tóth-Király KA, Davidson O. 2022. How self-compassion works: An experimental examination of change in the components of self-compassion and their association with positive and negative affect. Work. Pap., Univ. Tex., Austin
- Neff KD, Tóth-Király I, Colisomo K. 2018b. Self-compassion is best measured as a global construct and is overlapping with but distinct from neuroticism: a response to Pfattheicher, Geiger, Hartung, Weiss, and Schindler 2017. Eur. 7. Pers. 32(4):371–92
- Neff KD, Tóth-Király I, Knox MC, Kuchar A, Davidson O. 2021b. The development and validation of the state self-compassion scale (long and short form). *Mindfulness* 12(1):121–40
- Neff KD, Tóth-Király I, Yarnell L, Arimitsu K, Castilho P, et al. 2019. Examining the factor structure of the Self-Compassion Scale using exploratory SEM bifactor analysis in 20 diverse samples: support for use of a total score and six subscale scores. *Psychol. Assess.* 31(1):27–45
- Neff KD, Vonk R. 2009. Self-compassion versus global self-esteem: two different ways of relating to oneself. 7. Pers. 77:23–50
- Neff KD, Whittaker T, Karl A. 2017. Evaluating the factor structure of the Self- Compassion Scale in four distinct populations: Is the use of a total self-compassion score justified? *J. Pers. Assess.* 99(6):596–607
- Nolen-Hoeksema S, Wisco BE, Lyubomirsky S. 2008. Rethinking rumination. Perspect. Psychol. Sci. 3(5):400–24
- Phillips WJ, Hine DW. 2021. Self-compassion, physical health, and health behaviour: a meta-analysis. *Health Psychol. Rev.* 15(1):113–39
- Raab K. 2014. Mindfulness, self-compassion, and empathy among health care professionals: a review of the literature. 7. Health Care Chaplaincy 20(3):95–108
- Raes F, Pommier E, Neff KD, Van Gucht D. 2011. Construction and factorial validation of a short form of the self-compassion scale. Clin. Psychol. Psychother. 18(3):250–55
- Rakhimov A, Realo A, Tang NK. 2022. The Self-Compassion Scale: validation and psychometric properties within the exploratory structural equation modeling framework. J. Pers. Assess. In press. https://doi.org/ 10.1080/00223891.2022.2093731

- Robinson KJ, Mayer S, Allen AB, Terry M, Chilton A, Leary MR. 2016. Resisting self-compassion: Why are some people opposed to being kind to themselves? *Self Identity* 15(5):505–24
- Sbarra DA, Smith HL, Mehl MR. 2012. When leaving your ex, love yourself: observational ratings of self-compassion predict the course of emotional recovery following marital separation. Psychol. Sci. 23(3):261–69
- Schanche E, Stiles TC, McCullough L, Svartberg M, Nielsen G. 2011. The relationship between activating affects, inhibitory affects, and self-compassion in patients with Cluster C personality disorders. Psychotherapy 48(3):293–303
- Serpa JG, Bourey CP, Adjaoute GN, Pieczynski JM. 2020. Mindful Self-Compassion (MSC) with veterans: a program evaluation. Mindfulness 12:153–61
- Shapira LB, Mongrain M. 2010. The benefits of self-compassion and optimism exercises for individuals vulnerable to depression. J. Posit. Psychol. 5:377–89
- Shapiro SL, Carlson LE, Astin JA, Freedman B. 2006. Mechanisms of mindfulness. J. Clin. Psychol. 62(3):373–86
- Sirois FM, Molnar DS, Hirsch JK. 2015. Self-compassion, stress, and coping in the context of chronic illness. Self Identity 14(3):334–47
- Sirois FM, Nauts S, Molnar DS. 2019. Self-compassion and bedtime procrastination: an emotion regulation perspective. *Mindfulness* 10(3):434–45
- Siwik CJ, Phillips K, Zimmaro L, Salmon P, Sephton SE. 2022. Depressive symptoms among patients with lung cancer: elucidating the roles of shame, guilt, and self-compassion. *J. Health Psychol.* 27(5):1039–47
- Strauss C, Taylor BL, Gu J, Kuyken W, Baer R, Jones F, Cavanagh K. 2016. What is compassion and how can we measure it? A review of definitions and measures. Clin. Psychol. Rev. 47:15–27
- Stutts LA, Leary MR, Zeveney AS, Hufnagle AS. 2018. A longitudinal analysis of the relationship between self-compassion and the psychological effects of perceived stress. Self Identity 17(6):609–26
- Suh H, Chong SS. 2022. What predicts meaning in life? The role of perfectionistic personality and self-compassion. 7. Constr. Psychol. 35(2):719–33
- Suh H, Jeong J. 2021. Association of self-compassion with suicidal thoughts and behaviors and non-suicidal self injury: a meta-analysis. Front. Psychol. 12:1487
- Tay L, Jebb AT. 2018. Establishing construct continua in construct validation: the process of continuum specification. Adv. Methods Pract. Psychol. Sci. 1(3):375–88
- Torrijos-Zarcero M, Mediavilla R, Rodríguez-Vega B, Del Río-Diéguez M, López-Álvarez I, et al. 2021. Mindful Self-Compassion program for chronic pain patients: a randomized controlled trial. Eur. J. Pain 25(4):930–44
- Tóth-Király I, Neff KD. 2021. Is self-compassion universal? Support for the measurement invariance of the Self-Compassion Scale across populations. *Assessment* 28(1):169–85
- Turk F, Waller G. 2020. Is self-compassion relevant to the pathology and treatment of eating and body image concerns? A systematic review and meta-analysis. Clin. Psychol. Rev. 79:101856
- Vigna AJ, Poehlmann-Tynan J, Koenig BW. 2018. Does self-compassion facilitate resilience to stigma? A school-based study of sexual and gender minority youth. *Mindfulness* 9:914–24
- Wang X, Chen Z, Poon KT, Teng F, Jin S. 2017. Self-compassion decreases acceptance of own immoral behaviors. Pers. Individ. Diff. 106:329–33
- Wayment HA, West TN, Craddock EB. 2016. Compassionate values as a resource during the transition to college: quiet ego, compassionate goals, and self-compassion. *J. First-Year Exp. Stud. Transit.* 28(2):93–114
- Welp LR, Brown CM. 2014. Self-compassion, empathy, and helping intentions. 7. Posit. Psychol. 9(1):54-65
- Williams MJ, Dalgleish T, Karl A, Kuyken W. 2014. Examining the factor structures of the five facet mindfulness questionnaire and the self-compassion scale. *Psychol. Assess.* 26(2):407–18
- Wilson AC, Mackintosh K, Power K, Chan SW. 2019. Effectiveness of self-compassion related therapies: a systematic review and meta-analysis. Mindfulness 10(6):979–95
- Winders SJ, Murphy O, Looney K, O'Reilly G. 2020. Self-compassion, trauma, and posttraumatic stress disorder: a systematic review. Clin. Psychother. 27(3):300–29
- Wong MYC, Chung P-K, Leung K-M. 2021. The relationship between physical activity and self-compassion: a systematic review and meta-analysis. *Mindfulness* 12(3):547–63

- Yarnell LM, Neff KD. 2013. Self-compassion, interpersonal conflict resolutions, and well-being. Self Identity 2(2):146–59
- Yarnell LM, Neff KD, Davidson OA, Mullarkey M. 2019. Gender differences in self-compassion: examining the role of gender role orientation. *Mindfulness* 10(6):1136–52
- Yarnell LM, Stafford RE, Neff KD, Reilly ED, Knox MC, Mullarkey M. 2015. Meta-analysis of gender differences in self-compassion. Self Identity 14(5):499–520
- Yela JR, Crego A, Buz J, Sánchez-Zaballos E, Gómez-Martínez MÁ. 2022. Reductions in experiential avoidance explain changes in anxiety, depression and well-being after a mindfulness and self-compassion (MSC) training. Psychol. Psychother: Theory Res. Practice 95(2):402–22
- Yeung A, Xie Q, Huang X, Hoeppner B, Jain FA, et al. 2021. Effectiveness of mindful self-compassion training supported by online peer groups in China: a pilot study. *Altern. Ther. Health Med.* In press
- Yip VT, Tong EMW. 2021. Self-compassion and attention: Self-compassion facilitates disengagement from negative stimuli. 7. Posit. Psychol. 16(5):593–609
- Yuhan J, Wang DC, Canada A, Schwartz J. 2021. Growth after trauma: the role of self-compassion following Hurricane Harvey. Trauma Care 1(2):119–29
- Zessin U, Dickhauser O, Garbade S. 2015. The relationship between self-compassion and well-being: a meta-analysis. Appl. Psychol. Health Well-Being 7(3):340–64
- Zhang JW, Chen S. 2016. Self-compassion promotes personal improvement from regret experiences via acceptance. Pers. Soc. Psychol. Bull. 42(2):244–58
- Zhang JW, Chen S, Tomova Shakur TK. 2020. From me to you: Self-compassion predicts acceptance of own and others' imperfections. Pers. Soc. Psychol. Bull. 46(2):228–42
- Zhang JW, Chen S, Tomova Shakur TK, Bilgin B, Chai WJ, et al. 2019. A compassionate self is a true self? Self-compassion promotes subjective authenticity. *Pers. Soc. Psychol. Bull.* 45(9):1323–37
- Zhang JW, Kessler E, Braasch JLG. 2021. Self-compassion mindsets can predict statistics course performance via intelligence mindsets and statistics anxiety. *Learn. Individ. Diff.* 90:102047
- Zuroff DC, Clegg K-A, Levine SL, Hermanto N, Armstrong BF, et al. 2021. Beyond trait models of self-criticism and self-compassion: variability over domains and the search for signatures. Pers. Individ. Diff. 170:110429



# Annual Review of Psychology

Volume 74, 2023

# Contents

Surviving While Black: Systemic Racism and Psychological Resilience  *James M. Jones**	1
Understanding the Need for Sleep to Improve Cognition  Ruth L.F. Leong and Michael W.L. Chee	27
Rethinking Vision and Action  Ken Nakayama, Jeff Moher; and Joo-Hyun Song	59
The Development of Color Perception and Cognition  John Maule, Alice E. Skelton, and Anna Franklin	87
Understanding Human Object Vision: A Picture Is Worth a Thousand Representations  Stefania Bracci and Hans P. Op de Beeck	113
Turning Attention Inside Out: How Working Memory Serves Behavior Freek van Ede and Anna C. Nobre	137
Determinants of Social Cognitive Aging: Predicting Resilience and Risk Julie D. Henry, Sarah A. Grainger, and William von Hippel	167
Self-Compassion: Theory, Method, Research, and Intervention  *Kristin D. Neff**	193
Gender Inclusion and Fit in STEM  Toni Schmader	219
Evaluative Conditioning: Past, Present, and Future  Tal Moran, Yahel Nudler, and Yoav Bar-Anan	245
What Are Conspiracy Theories? A Definitional Approach to Their Correlates, Consequences, and Communication  Karen M. Douglas and Robbie M. Sutton	271
Embracing Complexity: A Review of Negotiation Research  Erica J. Boothby, Gus Cooney, and Maurice E. Schweitzer	299
Self-Continuity  Constantine Sedikides Emily K. Hong, and Tim Wildschut	333

A Socioecological-Genetic Framework of Culture and Personality: Their Roots, Trends, and Interplay  Jackson G. Lu, Verónica Benet-Martínez, and Laura Changlan Wang
Psychology of Climate Change  Linda Steg
Stress Management Interventions to Facilitate Psychological and Physiological Adaptation and Optimal Health Outcomes in Cancer Patients and Survivors Michael H. Antoni, Patricia I. Moreno, and Frank J. Penedo
Psychosocial and Integrative Oncology: Interventions Across the Disease Trajectory  Linda E. Carlson
Emotion in Organizations: Theory and Research  Hillary Anger Elfenbein 489
Pride: The Emotional Foundation of Social Rank Attainment  *Jessica L. Tracy, Eric Mercadante, and Ian Hohm
Psychological Resilience: An Affect-Regulation Framework  Allison S. Troy, Emily C. Willroth, Amanda J. Shallcross, Nicole R. Giuliani,  James J. Gross, and Iris B. Mauss
Dealing with Careless Responding in Survey Data: Prevention, Identification, and Recommended Best Practices  M.K. Ward and Adam W. Meade
The Psychology of Athletic Endeavor  Mark R. Beauchamp, Alan Kingstone, and Nikos Ntoumanis
Indexes
Cumulative Index of Contributing Authors, Volumes 64–74
Cumulative Index of Article Titles, Volumes 64–74

# Errata

An online log of corrections to *Annual Review of Psychology* articles may be found at http://www.annualreviews.org/errata/psych

# Related Articles

From the *Annual Review of Clinical Psychology*, Volume 18 (2022)

Temperamental and Theoretical Contributions to Clinical Psychology *Jerome Kagan* 

What Do We Know About the Genetic Architecture of Psychopathology? Evan 7. Giangrande, Ramona S. Weber, and Eric Turkheimer

Training the Next Generation of Clinical Psychological Scientists: A Data-Driven Call to Action

Dylan G. Gee, Kathryn A. DeYoung, Katie A. McLaughlin, Rachael M. Tillman, Deanna M. Barch, Erika E. Forbes, Robert F. Krueger, Timothy J. Strauman, Mariann R. Weierich, and Alexander J. Shackman

Measurement-Based and Data-Informed Psychological Therapy Wolfgang Lutz, Brian Schwartz, and Jaime Delgadillo

Behavioral Interventions to Reduce Cardiovascular Risk Among People with Severe Mental Disorder

Amanda L. Baker, Erin Forbes, Sonja Pohlman, and Kristen McCarter

Real-Time Functional MRI in the Treatment of Mental Health Disorders Vincent Taschereau-Dumouchel, Cody A. Cushing, and Hakwan Lau

The Genetic, Environmental, and Cultural Forces Influencing Youth Antisocial Behavior Are Tightly Intertwined

S. Alexandra Burt

The Invisibility of Power: A Cultural Ecology of Development in the Contemporary United States

Tasneem M. Mandviwala, Jennifer Hall, and Margaret Beale Spencer

Differences/Disorders of Sex Development: Medical Conditions at the Intersection of Sex and Gender

David E. Sandberg and Melissa Gardner

A Current Learning Theory Approach to the Etiology and Course of Anxiety and Related Disorders

Richard E. Zinbarg, Alexander L. Williams, and Susan Mineka

Dissociation and Dissociative Disorders Reconsidered: Beyond Sociocognitive and Trauma Models Toward a Transtheoretical Framework

Steven Jay Lynn, Craig Polizzi, Harald Merckelbach, Chui-De Chiu, Reed Maxwell, Dalena van Heugten, and Scott O. Lilienfeld

Psychosocial Treatments for Bipolar Disorder in Children and Adolescents Haley M. Brickman and Mary A. Fristad

Major Depression and Its Recurrences: Life Course Matters Scott M. Monroe and Kate L. Harkness

Suicide in African American Adolescents: Understanding Risk by Studying Resilience

W. LaVome Robinson, Christopher R. Whipple, Kate Keenan, Caleb E. Flack, and LaRicka Wingate

Psychopathy: Current Knowledge and Future Directions Christopher J. Patrick

Cognitive Aging and the Promise of Physical Activity

Kirk I. Erickson, Shannon D. Donofry, Kelsey R. Sewell, Belinda M. Brown,

and Chelsea M. Stillman

Neuroplasticity, the Prefrontal Cortex, and Psychopathology-Related Deviations in Cognitive Control

Monica Luciana and Paul F. Collins

The Biopsychosocial Puzzle of Painful Sex Marta Meana and Yitzchak M. Binik

Mechanisms of Behavior Change in Substance Use Disorder With and Without Formal Treatment

Katie Witkiewitz, Rory A. Pfund, and Jalie A. Tucker

Police Violence and Public Health

Jordan E. DeVylder, Deidre M. Anglin, Lisa Bowleg, Lisa Fedina, and Bruce G. Link

Allostasis, Action, and Affect in Depression: Insights from the Theory of Constructed Emotion

Clare Shaffer, Christiana Westlin, Karen S. Quigley, Susan Whitfield-Gabrieli, and Lisa Feldman Barrett

The Psychology of Pandemics Steven Taylor

# From the *Annual Review of Developmental Psychology*, Volume 4 (2022)

Becoming a Cognitive Scientist Susan E. Carey

Drivers of Lexical Processing and Implications for Early Learning

Arielle Borovsky

Human Morality Is Based on an Early-Emerging Moral Core Brandon M. Woo, Enda Tan, and J. Kiley Hamlin On the Origins of Mind: A Comparative Perspective Kresimir Durdevic and Josep Call

Sleep and Memory in Infancy and Childhood Gina M. Mason and Rebecca M.C. Spencer

Effects of Racism on Child Development: Advancing Antiracist Developmental Science

Iheoma U. Iruka, Nicole Gardner-Neblett, Nicole A. Telfer, Nneka Ibekwe-Okafor, Stephanie M. Curenton, Jacqueline Sims, Amber B. Sansbury, and Enrique W. Neblett

Inequitable Experiences and Outcomes in Young Children: Addressing Racial and Social-Economic Disparities in Physical and Mental Health Brenda Jones Harden and Natalie Slopen

Ownership and Value in Childhood

Madison L. Pesowski, Shaylene E. Nancekivell, Arber Tasimi, and Ori Friedman

Development of Religious Cognition

Rebekah A. Richert and Kathleen H. Corriveau

Gender Development in Gender Diverse Children
Benjamin E. deMayo, Ashley E. Jordan, and Kristina R. Olson

Development of Reward Circuitry During Adolescence: Depression, Social Context, and Considerations for Future Research on Disparities in Sexual and Gender Minority Youth

Kristen L. Eckstrand, Carly J. Lenniger, and Erika E. Forbes

Spatial Navigation in Childhood and Aging
Merve Tansan, Kim V. Nguyen, and Nora S. Newcombe

A Neurocognitive Model of Self-Concept Development in Adolescence Eveline A. Crone, Kayla H. Green, Ilse H. van de Groep, and Renske van der Cruijsen

The National Longitudinal Study of Adolescent to Adult Health (Add Health): An Underused Resource for Developmental Science Kathleen Mullan Harris and Carolyn Tucker Halpern

Beyond 'Use It or Lose It': The Impact of Engagement on Cognitive Aging Elizabeth A.L. Stine-Morrow and Ilber E. Manavbasi

Inhibition and Creativity in Aging: Does Distractibility Enhance Creativity? Lixia Yang, Kesaan Kandasamy, and Lynn Hasher

Open Science in Developmental Science

Lisa A. Gennetian, Michael C. Frank, and Catherine S. Tamis-LeMonda

Practice and Policy Regarding Child Neglect: Lessons from Studies of Institutional Deprivation

Charles H. Zeanah and Lucy S. King

The Critical Roles of Early Development, Stress, and Environment in the Course of Psychosis

T.G. Vargas and V.A. Mittal

Use of Population-Level Administrative Data in Developmental Science Barry J. Milne, Stephanie D'Souza, Signe Hald Andersen, and Leah S. Richmond-Rakerd

# From the Annual Review of Neuroscience, Volume 45 (2022)

Multiple-Timescale Representations of Space: Linking Memory to Navigation Wenbo Tang and Shantanu P. Jadhav

Challenges of Organoid Research

Madeline G. Andrews and Arnold R. Kriegstein

Receptor-Ribosome Coupling: A Link Between Extrinsic Signals and mRNA
Translation in Neuronal Compartments

Max Koppers and Christine E. Holt

Brainstem Circuits for Locomotion

Roberto Leiras, Jared M. Cregg, and Ole Kiehn

Signaling Pathways in Neurovascular Development Amir Rattner, Yanshu Wang, and Jeremy Nathans

Mesoaccumbal Dopamine Heterogeneity: What Do Dopamine Firing and Release Have to Do with It?

Johannes W. de Jong, Kurt M. Fraser; and Stephan Lammel

Melding Synthetic Molecules and Genetically Encoded Proteins to Forge New Tools for Neuroscience

Pratik Kumar and Luke D. Lavis

The Cerebellar Cortex

Court Hull and Wade G. Regehr

Clearing Your Mind: Mechanisms of Debris Clearance After Cell Death During Neural Development

Kendra E. Liu, Michael H. Raymond, Kodi S. Ravichandran, and Sarah Kucenas

Neural Signaling in Cancer

Michael B. Keough and Michelle Monje

Breathing Rhythm and Pattern and Their Influence on Emotion Sufyan Ashbad, Kaiwen Kam, Christopher A. Del Negro, and Jack L. Feldman

Neural Algorithms and Circuits for Motor Planning

Hidehiko K. Inagaki, Susu Chen, Kayvon Daie, Arseny Finkelstein, Lorenzo Fontolan, Sandro Romani, and Karel Svoboda

Fluorescence Imaging of Neural Activity, Neurochemical Dynamics, and Drug-Specific Receptor Conformation with Genetically Encoded Sensors Chunyang Dong, Yu Zheng, Kiran Long-Iyer, Emily C. Wright, Yulong Li, and Lin Tian

A Theoretical Framework for Human and Nonhuman Vocal Interaction Gregg A. Castellucci, Frank H. Guenther, and Michael A. Long

Neuromodulation and Neurophysiology on the Timescale of Learning and Decision-Making

Cooper D. Grossman and Jeremiah Y. Cohen

Neuroimmune Interactions in Peripheral Organs Roel G.J. Klein Wolterink, Glendon S. Wu, Isaac M. Chiu, and Henrique Veiga-Fernandes

Subcortical Cognition: The Fruit Below the Rind

Karolina Janacsek, Tanya M. Evans, Mariann Kiss, Leela Shah, Hal Blumenfeld,

and Michael T. Ullman

Considering Organismal Physiology in Laboratory Studies of Rodent Behavior Patricia Rubio Arzola and Rebecca M. Shansky

Neuroscientific Evidence for Processing Without Awareness Liad Mudrik and Leon Y. Deouell

Microglia and Neurodevelopmental Disorders John R. Lukens and Ukpong B. Eyo

Adeno-Associated Virus Toolkit to Target Diverse Brain Cells Rosemary C. Challis, Sripriya Ravindra Kumar, Xinhong Chen, David Goertsen, Gerard M. Coughlin, Acacia M. Hori, Miguel R. Chuapoco, Thomas S. Otis, Timothy F. Miles, and Viviana Gradinaru

Cross-Modal Plasticity in Brains Deprived of Visual Input Before Vision Guillermina López-Bendito, Mar Aníbal-Martínez, and Francisco J. Martini

Functional Ultrasound Neuroimaging Gabriel Montaldo, Alan Urban, and Emilie Macé

Human Cerebellar Development and Transcriptomics: Implications for Neurodevelopmental Disorders

Parthiv Haldipur, Kathleen J. Millen, and Kimberly A. Aldinger

Theory of the Multiregional Neocortex: Large-Scale Neural Dynamics and Distributed Cognition

Xiao-Jing Wang

Beyond Wrapping: Canonical and Noncanonical Functions of Schwann Cells Carla Taveggia and M. Laura Feltri

Synaptic Mechanisms Regulating Mood State Transitions in Depression *Puja K. Parekh, Shane B. Johnson, and Conor Liston* 

From the *Annual Review of Organizational Psychology and Organizational Behavior*, Volume 9 (2022)

From Traditional Research to Responsible Research: The Necessity of Scientific Freedom and Scientific Responsibility for Better Societies

Anne S. Tsui

Recovery from Work: Advancing the Field Toward the Future Sabine Sonnentag, Bonnie Hayden Cheng, and Stacey L. Parker

The Science of Leadership: A Theoretical Model and Research Agenda Andrew M. Carton

Stigmatized Work and Stigmatized Workers

Glen Kreiner, Christine A. Mihelcic, and Sven Mikolon

The Power of Listening at Work

Avraham N. Kluger and Guy Itzchakov

Compensation, Benefits, and Total Rewards: A Bird's-Eye (Re)View Ingrid Smithey Fulmer and Junting Li

Smart Heuristics for Individuals, Teams, and Organizations Gerd Gigerenzer, Jochen Reb, and Shenghua Luan

When Gender Matters in Organizational Negotiations

Hannah Riley Bowles, Bobbi Thomason, and Inmaculada Macias-Alonso

New Developments in Social Network Analysis Daniel J. Brass

Trust Within the Workplace: A Review of Two Waves of Research and a Glimpse of the Third

Kurt T. Dirks and Bart de Jong

Cross-Cultural Innovation and Entrepreneurship *Ute Stephan* 

Relational Dynamics of Leadership: Problems and Prospects Terri A. Scandura and Jeremy D. Meuser

The Structure of Intrinsic Motivation Ayelet Fishbach and Kaitlin Woolley

Revisiting Behavioral Integrity: Progress and New Directions After 20 Years Tony Simons, Hannes Leroy, and Lisa Nishii

Informal (Field-Based) Learning
Scott I. Tannenbaum and Mikhail A. Wolfson

Assessing Interests in the Twenty-First-Century Workforce: Building on a Century of Interest Measurement

Christopher D. Nye

Accumulating Knowledge in the Organizational Sciences Frank A. Bosco

From the Annual Review of Public Health, Volume 43 (2022)

Advances in Gender-Transformative Approaches to Health Promotion \*Jane Fisher and Shelly Makleff\* Methods to Address Confounding and Other Biases in Meta-Analyses: Review and Recommendations

Maya B. Mathur and Tyler 7. VanderWeele

Qualitative Research Methods in Chronic Disease: Introduction and Opportunities to Promote Health Equity Rachel C. Shelton, Morgan M. Philbin, and Shoba Ramanadhan

Risks and Opportunities to Ensure Equity in the Application of Big Data Research in Public Health

Paul Wesson, Yulin Hswen, Gilmer Valdes, Kristefer Stojanovski, and Margaret A. Handley

Social Epidemiology: Past, Present, and Future Ana V. Diez Roux

The Recent Rise of Suicide Mortality in the United States

Gonzalo Martínez-Alés, Tammy Jiang, Katherine M. Keyes, and Jaimie L. Gradus

A Review of the Quality and Impact of Mobile Health Apps Quinn Grundy

Reimagining Rural: Shifting Paradigms About Health and Well-Being in the Rural United States

R.A. Afifi, E.A. Parker, G. Dino, D.M. Hall, and B. Ulin

Scaling Up Public Health Interventions: Engaging Partners Across Multiple Levels

Jennifer Leeman, Alix Boisson, and Vivian Go

Social Capital, Black Social Mobility, and Health Disparities Keon L. Gilbert, Yusuf Ransome, Lorraine T. Dean, Jerell DeCaille, and Ichiro Kawachi

Social Connection as a Public Health Issue: The Evidence and a Systemic Framework for Prioritizing the "Social" in Social Determinants of Health *Julianne Holt-Lunstad* 

The Role of Citizen Science in Promoting Health Equity

Lisa G. Rosas, Patricia Rodriguez Espinosa, Felipe Montes Jimenez, and Abby C. King

Understanding Health Inequalities Through the Lens of Social Epigenetics Chantel L. Martin, Lea Ghastine, Evans K. Lodge, Radhika Dhingra, and Cavin K. Ward-Caviness

Barriers and Enablers for Integrating Public Health Cobenefits in Urban Climate Policy

Maya Negev, Leonardo Zea-Reyes, Livio Caputo, Gudrun Weinmayr, Clive Potter, and Audrey de Nazelle

Environmental Factors Influencing COVID-19 Incidence and Severity

Amanda K. Weaver, Jennifer R. Head, Carlos F. Gould, Elizabeth J. Carlton,
and Justin V. Remais

- Personal Interventions to Reduce Exposure to Outdoor Air Pollution Robert J. Laumbach and Kevin R. Cromar
- Transmission of Respiratory Viral Diseases to Health Care Workers: COVID-19 as an Example
  - Amanda M. Wilson, Darrah K. Sleeth, Camie Schaefer, and Rachael M. Jones
- Designing for Dissemination and Sustainability to Promote Equitable Impacts on Health
  - Bethany M. Kwan, Ross C. Brownson, Russell E. Glasgow, Elaine H. Morrato, and Douglas A. Luke
- Health-Related Quality of Life Measurement in Public Health Robert M. Kaplan and Ron D. Hays
- Public Health Roles in Addressing Commercial Determinants of Health Kelley Lee and Nicholas Freudenberg
- Real-Time Infectious Disease Modeling to Inform Emergency Public Health Decision Making
  - Anna Bershteyn, Hae-Young Kim, and R. Scott Braithwaite
- Roles of Cities in Creating Healthful Food Systems
  Nevin Cohen
- Active Aging and Public Health: Evidence, Implications, and Opportunities Shilpa Dogra, David W. Dunstan, Takemi Sugiyama, Afroditi Stathi, Paul A. Gardiner, and Neville Owen
- Advancing Diabetes Prevention and Control in American Indians and Alaska Natives
  - Julie E. Lucero and Yvette Roubideaux
- Eliminating Explicit and Implicit Biases in Health Care: Evidence and Research Needs
  - Monica B. Vela, Amarachi I. Erondu, Nichole A. Smith, Monica E. Peek, James N. Woodruff, and Marshall H. Chin
- Health and Health Care Among Transgender Adults in the United States Ayden I. Scheim, Kellan E. Baker, Arjee J. Restar, and Randall L. Sell
- Mobile Health (mHealth) in Low- and Middle-Income Countries Judith McCool, Rosie Dobson, Robyn Whittaker, and Chris Paton
- Shifting the Demand for Vaccines: A Review of Strategies

  Neeraj Sood, Tahmina Nasserie, Sushant Joshi, and Eran Bendavid
- The Indian Health Service and American Indian/Alaska Native Health Outcomes Gina Kruse, Victor A. Lopez-Carmen, Anpotowin Jensen, Lakotah Hardie, and Thomas D. Sequist
- From the Annual Review of Vision Science, Volume 8 (2022)
  - The Boston Keratoprosthesis—The First 50 Years: Some Reminiscences Claes Dohlman

The Essential Role of the Choriocapillaris in Vision: Novel Insights from Imaging and Molecular Biology

Kelly Mulfaul, Jonathan F. Russell, Andrew P. Voigt, Edwin M. Stone, Budd A. Tucker, and Robert F. Mullins

Calcium Channels in Retinal Function and Disease Brittany Williams, J. Wesley Maddox, and Amy Lee

Cellular and Molecular Determinants of Retinal Cell Fate Eleni Petridou and Leanne Godinho

Do You See What I See? Diversity in Human Color Perception Jenny M. Bosten

Feature Detection by Retinal Ganglion Cells Daniel Kerschensteiner

Retinal Encoding of Natural Scenes

Dimokratis Karamanlis, Helene Marianne Schreyer, and Tim Gollisch

Vision Impairment and On-Road Driving *Joanne M. Wood* 

Patient-Reported Measures of the Effects of Vision Impairments and Low Vision Rehabilitation on Functioning in Daily Life

Robert W. Massof

Sensory Perception in Autism: What Can We Learn? Bat-Sheva Hadad and Amit Yashar

Statistical Learning in Vision 7ózsef Fiser and Gábor Lengyel

Critical Periods in Vision Revisited

Donald E. Mitchell and Daphne Maurer

Recent Treatment Advances in Amblyopia Kimberly Meier and Kristina Tarczy-Hornoch

Binocular Integration in the Primate Primary Visual Cortex A. Maier, M.A. Cox, J.A. Westerberg, and K. Dougherty

Spike-Gamma Phase Relationship in the Visual Cortex Supratim Ray

More Than the Face: Representations of Bodies in the Inferior Temporal Cortex Rufin Vogels

Visual Attention in the Prefrontal Cortex *Julio Martinez-Trujillo* 

Eye Movements as a Window into Decision-Making Miriam Spering