

# **31 mindfulness & compassion relevant** **abstracts: april '19 newsletter**

(Anderson, Monroy et al. 2018; Brethel-Haurwitz, Cardinale et al. 2018; Dunning, Griffiths et al. 2018; Emerson, Heapy et al. 2018; Eriksson, Germundsjö et al. 2018; Evans, Wyka et al. 2018; Gebauer, Nehrlich et al. 2018; Griffiths, Johnson et al. 2018; Hafenbrack, Cameron et al. 2018; Jans-Beken, Lataster et al. 2018; Johnson, Hendricks et al. 2018; Millière, Carhart-Harris et al. 2018; Murphy, Janicki-Deverts et al. 2018; Nidich, Mills et al. 2018; Rottenberg, Devendorf et al. 2018; Seli, Beaty et al. 2018; Travis, Valosek et al. 2018; Vollbehre, Bartels-Velthuis et al. 2018; Watkins, Emmons et al. 2018; Weng, Lapate et al. 2018; Ewais, Begun et al. 2019; Heshmati, Oravec et al. 2019; Janssen, Kan et al. 2019; Kamp and Due 2019; Kirschner, Kuyken et al. 2019; Margana, Bhogal et al. 2019; Muise, Harasymchuk et al. 2019; Naismith, Zarate Guerrero et al. 2019; O'Brien and Kassirer 2019; Park and Pyszczynski 2019; Vehling, Tian et al. 2019)

Anderson, C. L., M. Monroy, et al. (2018). "**Awe in nature heals: Evidence from military veterans, at-risk youth, and college students.**" *Emotion* 18: 1195-1202. <https://psycnet.apa.org/doiLanding?doi=10.1037%2Femo0000442>

The power of nature to both heal and inspire awe has been noted by many great thinkers. However, no study has examined how the impact of nature on well-being and stress-related symptoms is explained by experiences of awe. In the present investigation, we examine this process in studies of extraordinary and everyday nature experiences. In Study 1, awe experienced by military veterans and youth from underserved communities while whitewater rafting, above and beyond all the other positive emotions measured, predicted changes in well-being and stress-related symptoms one week later. In Study 2, the nature experiences that undergraduate students had during their everyday lives led to more awe, which mediated the effect of nature experience on improvements in well-being. We discuss how accounting for people's emotional experiences during outdoors activities can increase our understanding of how nature impacts people's well-being.

Brethel-Haurwitz, K. M., E. M. Cardinale, et al. (2018). "**Extraordinary altruists exhibit enhanced self-other overlap in neural responses to distress.**" *Psychological Science* 29(10): 1631-1641.

<https://journals.sagepub.com/doi/abs/10.1177/0956797618779590>

(Available in free full text) Shared neural representations during experienced and observed distress are hypothesized to reflect empathic neural simulation, which may support altruism. But the correspondence between real-world altruism and shared neural representations has not been directly tested, and empathy's role in promoting altruism toward strangers has been questioned. Here, we show that individuals who have performed costly altruism (donating a kidney to a stranger;  $n = 25$ ) exhibit greater self-other overlap than matched control participants ( $n = 27$ ) in neural representations of pain and threat (fearful anticipation) in anterior insula (AI) during an empathic-pain paradigm. Altruists exhibited greater self-other correspondence in pain-related activation in left AI, highlighting that group-level overlap was supported by individual-level associations between empathic pain and firsthand pain. Altruists exhibited enhanced functional coupling of left AI with left midinsula during empathic pain and threat. Results show that heightened neural instantiations of empathy correspond to real-world altruism and highlight limitations of self-report.

Dunning, D. L., K. Griffiths, et al. (2018). "**Research review: The effects of mindfulness-based interventions on cognition and mental health in children and adolescents – a meta-analysis of randomized controlled trials.**" 0(0).

<https://onlinelibrary.wiley.com/doi/abs/10.1111/jcpp.12980>

(Available in free full text) Background Mindfulness based interventions (MBIs) are an increasingly popular way of attempting to improve the behavioural, cognitive and mental health outcomes of children and adolescents, though there is a suggestion that enthusiasm has moved ahead of the evidence base. Most evaluations of MBIs are either uncontrolled or nonrandomized trials. This meta-analysis aims to establish the efficacy of MBIs for children and adolescents in studies that have adopted a randomized, controlled trial (RCT) design. Methods A systematic literature search of RCTs of MBIs was conducted up to October 2017. Thirty-three independent studies including 3,666 children and adolescents were included in random effects meta-analyses with outcome measures categorized into cognitive, behavioural and emotional factors. Separate random effects meta-analyses were completed for the seventeen studies ( $n = 1,762$ ) that used an RCT design with an active control condition. Results Across all RCTs we found significant positive effects of MBIs, relative to controls, for the outcome categories of Mindfulness, Executive Functioning, Attention, Depression, Anxiety/Stress and Negative Behaviours, with small effect sizes (Cohen's  $d$ ), ranging from .16 to .30. However, when considering only those RCTs with active control groups, significant benefits of an MBI were restricted to the outcomes of Mindfulness ( $d = .42$ ), Depression ( $d = .47$ ) and Anxiety/Stress ( $d = .18$ ) only. Conclusions This meta-analysis reinforces the efficacy of using MBIs for improving the mental health and wellbeing of youth as assessed using the gold standard RCT methodology. Future RCT evaluations should incorporate scaled-up definitive trial designs to further evaluate the robustness of MBIs in youth, with an embedded focus on mechanisms of action.

Emerson, L.-M., C. Heapy, et al. (2018). "**Which facets of mindfulness protect individuals from the negative experiences of obsessive intrusive thoughts?**" *Mindfulness (N Y)* 9(4): 1170-1180. <https://doi.org/10.1007/s12671-017-0854-3>

(Available in free full text) Obsessive intrusive thoughts (OITs) are experienced by the majority of the general population, and in their more extreme forms are characteristic of obsessive-compulsive disorder (OCD). These cognitions are said to exist on a continuum that includes differences in their frequency and associated distress. The key factors that contribute to an increased frequency and distress are how the individual appraises and responds to the OIT. Facets of mindfulness, such as nonjudgment and nonreactivity, offer an alternative approach to OITs than the negative appraisals and commonly utilised control strategies that often contribute to distress. Clarifying the role of facets of mindfulness in relation to these cognitions offers a means to elucidate individual characteristics that may offer protection from distress associated with OITs. A sample of nonclinical individuals ( $n = 583$ ) completed an online survey that assessed their experiences of OITs, including frequency, emotional reaction and appraisals, and trait mindfulness. The findings from a series of multiple regression analyses confirmed that specific facets of mindfulness relating to acting with awareness and acceptance (nonjudgment and nonreactivity) consistently predicted less frequent and distressing experiences of OITs. In contrast, the observe facet emerged as a consistent predictor of negative experiences of OITs. These findings suggest that acting with awareness and acceptance may confer protective characteristics in relation to OITs, but that the observe facet may reflect a hypervigilance to OITs. Mindfulness-based prevention and intervention for OCD should be tailored to take account of the potential differential effects of increasing specific facets of mindfulness.

Eriksson, T., L. Germundsjö, et al. (2018). **"Mindful self-compassion training reduces stress and burnout symptoms among practicing psychologists: A randomized controlled trial of a brief web-based intervention."** *Frontiers in Psychology* 9(2340). <https://www.frontiersin.org/article/10.3389/fpsyg.2018.02340>

(Available in free full text) Objective: The purpose of this study was to examine the effects of a six-week web-based mindful self-compassion program on stress and burnout symptoms in a group of helping professionals. Method: In a randomized controlled trial 101 practicing psychologists were assigned to a training group (n = 51) and a wait-list control group (n = 49). The training program involved 15 min exercises per day, six days a week, for six weeks. The participants completed the Self-Compassion Scale (SCS), the Five Facets of Mindfulness Questionnaire (FFMQ), the Perceived Stress Scale (PSS), and the Shirom Melamed Burnout Questionnaire (SMBQ) pre and post intervention. Results: Eighty-one participants (n = 40 in the training group, n = 41 in the control group) took part in the pre and post assessments. Selective gains for the intervention group were observed for SCS total score (d = 0.86; d = .94 for the self-compassion scale). Levels of self-coldness were reduced following the training and mindfulness scores increased (d = 0.60). Most important, levels of perceived stress (d = .59) and burnout symptoms (d = .44 for SMBQ total, mental aspects in particular) were lower post intervention. The results largely confirmed the hypothesis that the measures of distress would be more strongly related to self-coldness than self-compassion, a pattern seen in cross-sectional analyses and longitudinal analyses, at least for burnout. Conclusions: The mindful self-compassion program appeared effective to increase self-compassion/reduce self-coldness, and to alleviate stress and symptoms of burnout in the study sample. Additional studies, preferably three-armed RCTs with long-term follow-up, are warranted to further evaluate the effectiveness of the program.

Evans, S., K. Wyka, et al. (2018). **"Self-compassion mediates improvement in well-being in a mindfulness-based stress reduction program in a community-based sample."** *Mindfulness (N Y)* 9(4): 1280-1287. <https://doi.org/10.1007/s12671-017-0872-1>

Numerous studies have found mindfulness-based stress reduction (MBSR) to be useful for a range of problems including anxiety, pain, and coping with a medical illness. As the field matures, there is a growing interest in mediational factors associated with the beneficial effects of MBSR. Self-compassion is a construct of increasing focus in empirical study and may play a role in the change process leading to improvement in well-being through MBSR. The primary goal of this pilot study was to examine the role of self-compassion in producing improved well-being following an 8-week MBSR program with a community-based sample. Participants engaged in a MBSR program at a major academic medical center and completed the Profile of Mood States (POMS), Mindful Attention Awareness Scale (MAAS), and the Self-Compassion Scale (SCS) pre- and post-MBSR course. Results demonstrated significant reduction of symptoms on the POMS and significant increases on the MAAS and SCS at the end of the program, indicating notable improvements in well-being. Mediation analyses demonstrated that changes in self-compassion mediated the relationship between mindfulness and well-being following MBSR training (serial indirect effects;  $\beta = -9.45$ , CI (-39.06, -7.50)). These results suggest that mindfulness may provide a pathway to cultivating self-compassion in MBSR, which may be associated with enhanced well-being.

Ewais, T., J. Begun, et al. (2019). **"A systematic review and meta-analysis of mindfulness based interventions and yoga in inflammatory bowel disease."** *Journal of Psychosomatic Research* 116: 44-53. <http://www.sciencedirect.com/science/article/pii/S0022399918308705>

Background Mindfulness interventions are increasingly used as a part of integrated treatment in inflammatory bowel disease (IBD) but there are limited data and a lack of consensus regarding effectiveness. Objectives We explored the efficacy of mindfulness interventions compared to treatment as usual (TAU), or other psychotherapeutic interventions, in treating physical and psychosocial symptoms associated with IBD. Methods We conducted a systematic review and meta-analysis of relevant randomized controlled trials (RCTs). We included a broad range of mindfulness interventions including mindfulness-based interventions and yoga, with no restrictions on date of publication, participants' age, language or publication type. We searched the following electronic databases: MEDLINE, EMBASE, PsycINFO, CINAHL and WHO ICTRP database. We adhered to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines in conducting the review. Results We included eight studies in the meta-analysis. Mindfulness interventions showed a statistically significant effect on stress in both the short (SMD = -0.48; 95%CI: -0.97, 0.00; P = .05), and long term (SMD = -0.55; 95%CI: -0.78, -0.32; P < .00001), significant long term effects on depression (SMD = -0.36; 95%CI: -0.66, -0.07; P = .02) and quality of life (SMD = 0.38; 95%CI: 0.08, 0.68; P = .01), and small but not statistically significant improvements in anxiety (SMD = -0.27; 95%CI: -0.65, 0.11; P = .16). Effects on physical outcomes were equivocal and not statistically significant. Conclusions Mindfulness interventions are effective in reducing stress and depression and improving quality of life and anxiety, but do not lead to significant improvements in the physical symptoms of IBD. Further research involving IBD-tailored interventions and more rigorously designed trials is warranted.

Gebauer, J. E., A. D. Nehrlich, et al. (2018). **"Mind-body practices and the self: Yoga and meditation do not quiet the ego but instead boost self-enhancement."** *Psychol Sci* 29(8): 1299-1308. <https://www.ncbi.nlm.nih.gov/pubmed/29932807>

Mind-body practices enjoy immense public and scientific interest. Yoga and meditation are highly popular. Purportedly, they foster well-being by curtailing self-enhancement bias. However, this "ego-quieting" effect contradicts an apparent psychological universal, the self-centrality principle. According to this principle, practicing any skill renders that skill self-central, and self-centrality breeds self-enhancement bias. We examined those opposing predictions in the first tests of mind-body practices' self-enhancement effects. In Experiment 1, we followed 93 yoga students over 15 weeks, assessing self-centrality and self-enhancement bias after yoga practice (yoga condition, n = 246) and without practice (control condition, n = 231). In Experiment 2, we followed 162 meditators over 4 weeks (meditation condition: n = 246; control condition: n = 245). Self-enhancement bias was higher in the yoga (Experiment 1) and meditation (Experiment 2) conditions, and those effects were mediated by greater self-centrality. Additionally, greater self-enhancement bias mediated mind-body practices' well-being benefits. Evidently, neither yoga nor meditation fully quiet the ego; to the contrary, they boost self-enhancement.

Griffiths, R. R., M. W. Johnson, et al. (2018). **"Psilocybin-occasioned mystical-type experience in combination with meditation and other spiritual practices produces enduring positive changes in psychological functioning and in trait measures of prosocial attitudes and behaviors."** *Journal of Psychopharmacology (Oxford, England)* 32(1): 49-69. <https://www.ncbi.nlm.nih.gov/pubmed/29020861>  
<https://www.ncbi.nlm.nih.gov/pmc/PMC5772431/>

(Available in free full text) Psilocybin can occasion mystical-type experiences with participant-attributed increases in well-being. However, little research has examined enduring changes in traits. This study administered psilocybin to participants who undertook a program of meditation/spiritual practices. Healthy participants were randomized to three groups (25 each): (1) very low-dose (1 mg/70 kg on sessions 1 and 2) with moderate-level ("standard") support for spiritual-practice (LD-SS); (2) high-dose (20 and 30 mg/70 kg on sessions 1 and 2, respectively) with standard support (HD-SS); and (3) high-dose (20 and 30 mg/70kg on sessions 1 and 2, respectively) with high support for spiritual practice (HD-HS). Psilocybin was administered

double-blind and instructions to participants/staff minimized expectancy confounds. Psilocybin was administered 1 and 2 months after spiritual-practice initiation. Outcomes at 6 months included rates of spiritual practice and persisting effects of psilocybin. Compared with low-dose, high-dose psilocybin produced greater acute and persisting effects. At 6 months, compared with LD-SS, both high-dose groups showed large significant positive changes on longitudinal measures of interpersonal closeness, gratitude, life meaning/purpose, forgiveness, death transcendence, daily spiritual experiences, religious faith and coping, and community observer ratings. Determinants of enduring effects were psilocybin-occasioned mystical-type experience and rates of meditation/spiritual practices. Psilocybin can occasion enduring trait-level increases in prosocial attitudes/behaviors and in healthy psychological functioning.

Hafenbrack, A., L. Cameron, et al. (2018). **"Helping people by being in the present: Mindfulness increases prosocial behavior."** *Academy of Management Journal* 2018(1): 12684.

<https://journals.aom.org/doi/abs/10.5465/AMBPP.2018.12684abstract>

While mindfulness originated in Buddhist teachings, the variant studied by Western psychologists and taught in corporations has been secularized. One might suspect that secularized mindfulness - a version of mindfulness from which prescriptions for how to treat others have been removed - would not be effective for promoting prosocial behavior. It is important to explore whether this is the case or not. Secular mindfulness is characterized by focused, nonjudgmental awareness of the present moment and can be cultivated via meditation. The present research tested whether secular mindfulness increases prosocial behavior. Study 1 was a field experiment in India. Employees who had been randomly assigned to engage in a focused breathing meditation were more willing to donate to a coworker in financial distress. Study 2 was a longitudinal field experiment at a US insurance company. Employees who were randomly assigned to a five (5) day brief mindfulness training intervention reported more helping behaviors quantitatively and in daily diaries. Study 3 was an experiment which examined mechanisms of the effects of induced state mindfulness via two different mindfulness inductions, focused breathing and loving kindness meditations, on compassionate responding. We found strong support for empathy and moderate support for perspective taking as mediators of the relationship between mindfulness and prosocial behavior. In contrast to arguments that the removal of Buddhist-based concepts from mindfulness renders it ineffectual to promote interconnectedness and compassion, our results indicate that secular mindfulness can make people more helpful towards others.

Heshmati, S., Z. Oravecz, et al. (2019). **"What does it mean to feel loved: Cultural consensus and individual differences in felt love."** *Journal of Social and Personal Relationships* 36(1): 214-243.

<https://journals.sagepub.com/doi/abs/10.1177/0265407517724600>

(Available in free full text) Cultural consensus theory is a statistical framework (CCT) for the study of individual differences in the knowledge of culturally shared opinions. In this article, we demonstrate how a CCT analysis can be used to study individual differences and cultural consensus on what makes people feel loved, or more generally any social behaviors that are governed by cognitive schemata. To highlight the advantages of the method, we describe a study in which people reported on their everyday experiences of feeling loved. Our unique approach to understanding this topic is to focus on people's cognitive evaluations on what feeling loved (both romantically and nonromantically) entails by exploring the shared agreement regarding when one is most likely to feel loved and the individual differences that influence knowledge of these shared agreements. Our results reveal that people converge on a consensus about indicators of expressed love and that these scenarios are both romantic and nonromantic. Moreover, people show individual differences in (1) the amount of knowledge they have about this consensus and (2) their guessing biases in responding to items on love scenarios, depending on personality and demographics—all conclusions made possible by the CCT method. [Interesting comments about this article - <https://tinyurl.com/y7wqvez5> - at BPS Research Digest].

Jans-Beken, L., J. Lataster, et al. (2018). **"Gratitude, psychopathology and subjective well-being: Results from a 7.5-month prospective general population study."** *Journal of Happiness Studies* 19(6): 1673-1689.

<https://doi.org/10.1007/s10902-017-9893-7>

(Available in free full text) Gratitude is considered an important source of human strength in achieving and maintaining good mental health. Although complete mental health encompasses the absence of psychopathology and the presence of subjective well-being, no studies to date have examined relations between gratitude and both mental health dimensions together. Moreover, most studies focused on specific samples with a restricted demographic range. Our study, therefore, examined (a) demographic variability in the grateful trait, and (b) prospective associations between gratitude and both dimensions of mental health: psychopathology and subjective well-being. Using a four wave prospective survey design in a large (N = 706) sample of Dutch adults (M age = 44, SD age = 14, Range = 18–80), we measured gratitude with the SGRAT, symptoms of psychopathology with the SCL-90, and subjective well-being with the PANAS and SWLS. Gratitude was significantly associated with age, gender, education level, and employment status. Multilevel time-lagged regression analyses showed that the grateful trait did not predict symptoms of psychopathology, but was a significant albeit weak predictor of subjective well-being, when adjusting for the effects of demographic factors, and prior levels of subjective well-being and psychopathology. Our findings indicate that the grateful trait is associated with demographic factors, and shows complex connections with the presence of well-being and absence of psychopathology. These dynamics should be taken into consideration when studying the role of gratitude in mental health, and developing, applying, and evaluating gratitude interventions with the aim of enhancing subjective well-being and/or reducing psychopathology.

Janssen, L., C. C. Kan, et al. (2019). **"Mindfulness-based cognitive therapy v. Treatment as usual in adults with ADHD: A multicentre, single-blind, randomised controlled trial."** *Psychological Medicine* 49(1): 55-65.

<https://www.cambridge.org/core/article/mindfulnessbased-cognitive-therapy-v-treatment-as-usual-in-adults-with-adhd-a-multicentre-singleblind-randomised-controlled-trial/1343D997C71E59CF49F3D4A71DE066CE>

Background There is a high need for evidence-based psychosocial treatments for adult attention-deficit hyperactivity disorder (ADHD) to offer alongside treatment as usual (TAU). Mindfulness-based cognitive therapy (MBCT) is a promising psychosocial treatment. This trial investigated the efficacy of MBCT + TAU v. TAU in reducing core symptoms in adults with ADHD. Methods A multicentre, single-blind, randomised controlled trial (ClinicalTrials.gov: NCT02463396). Participants were randomly assigned to MBCT + TAU (n = 60), an 8-weekly group therapy including meditation exercises, psychoeducation and group discussions, or TAU only (n = 60), which reflected usual treatment in the Netherlands and included pharmacotherapy and/or psychoeducation. Primary outcome was ADHD symptoms rated by blinded clinicians. Secondary outcomes included self-reported ADHD symptoms, executive functioning, mindfulness skills, self-compassion, positive mental health and general functioning. Outcomes were assessed at baseline, post-treatment, 3- and 6-month follow-up. Post-treatment effects at group and individual level, and follow-up effects were examined. Results In MBCT + TAU patients, a significant reduction of clinician-rated ADHD symptoms was found at post-treatment [M difference = -3.44 (-5.75, -1.11), p = 0.004, d = 0.41]. This effect was maintained until 6-month follow-up. More MBCT + TAU (27%) than TAU participants (4%) showed a ≤30% reduction of ADHD symptoms (p = 0.001). MBCT + TAU patients compared with TAU patients also reported significant improvements in



ADHD symptoms, mindfulness skills, self-compassion and positive mental health at post-treatment, which were maintained until 6-month follow-up. Although patients in MBCT + TAU compared with TAU reported no improvement in executive functioning at post-treatment, they did report improvement at 6-month follow-up. Conclusions MBCT might be a valuable treatment option alongside TAU for adult ADHD aimed at alleviating symptoms.

Johnson, M. W., P. S. Hendricks, et al. (2018). **"Classic psychedelics: An integrative review of epidemiology, mystical experience, brain network function, and therapeutics."** *Pharmacology & Therapeutics*.  
<http://www.sciencedirect.com/science/article/pii/S0163725818302158>

The purpose of this paper is to provide an integrative review and offer novel insights regarding human research with classic psychedelics (classic hallucinogens), which are 5HT<sub>2A</sub>R agonists such as lysergic acid diethylamide (LSD), mescaline, and psilocybin. Classic psychedelics have been administered as sacraments since ancient times. They were of prominent interest within psychiatry and neuroscience in the 1950s to 1960s, and during this time contributed to the emergence of the field of molecular neuroscience. Promising results were reported for treatment of both end-of-life psychological distress and addiction, and classic psychedelics served as tools for studying the neurobiological bases of psychological disorders. Moreover, classic psychedelics were shown to occasion mystical experiences, which are subjective experiences reported throughout different cultures and religions involving a strong sense of unity, among other characteristics. However, the recreational use of classic psychedelics and their association with the counterculture prompted an end to human research with classic psychedelics in the early 1970s. We review recent therapeutic studies suggesting efficacy in treating psychological distress associated with life-threatening diseases, treating depression, and treating nicotine and alcohol addictions. We also describe the construct of mystical experience, and provide a comprehensive review of modern studies investigating classic psychedelic-occasioned mystical experiences and their consequences. These studies have shown classic psychedelics to fairly reliably occasion mystical experiences. Moreover, classic psychedelic-occasioned mystical experiences are associated with improved psychological outcomes in both healthy volunteer and patient populations. We also review neuroimaging studies that suggest neurobiological mechanisms of psychedelics. These studies have also broadened our understanding of the brain, the serotonin system, and the neurobiological basis of consciousness. Finally, we provide the most comprehensive review of epidemiological studies of classic psychedelics to date. Notable among these are a number of studies which have suggested the possibility that nonmedical naturalistic (non-laboratory) use of classic psychedelics is associated with positive mental health and prosocial outcomes, although it is clear that some individuals are harmed by classic psychedelics in non-supervised settings. Overall, these various lines of research suggest that classic psychedelics might hold strong potential as therapeutics, and as tools for experimentally investigating mystical experiences and behavioral-brain function more generally.

Kamp, K. S. and H. Due (2019). **"How many bereaved people hallucinate about their loved one? A systematic review and meta-analysis of bereavement hallucinations."** *Journal of Affective Disorders* 243: 463-476.  
<http://www.sciencedirect.com/science/article/pii/S0165032718301551>

Background Bereavement hallucinations (BHs) entail a perception of a deceased in any sense modality or as a quasi-sensory sense of presence. BHs are an associated feature of the proposed Persistent Complex Bereavement Disorder (PCBD) in DSM-5. The goals of this review are to estimate the prevalence of BHs, identify possible moderators, and review the methodological status of this research field. Methods A systematic literature search was conducted through the databases PubMed, PsycINFO, and CINAHL. Studies systematically assessing the prevalence of BHs of a relative or friend were included. Results Twenty-one eligible studies were identified and 8 meta-analyses of BHs in different sense modalities were conducted. The prevalence of having one or more BHs was estimated to be 56.6% (95% CI 49.9–63.2), and the estimated prevalence of BHs in specific sense modalities ranged within 7.0–39.7%. Meta-regression analyses revealed associations to age and conjugal bereavement, but results are tentative and dependent on the type of BH in question. Limitations The included studies were methodologically heterogeneous. Limitations included the lack of a valid measure of BHs and low sample generalizability. Conclusion This first systematic review and meta-analysis of BHs suggests that more than half of the bereaved people experience some kind of BH. However, there are considerable methodological limitations in the research of BHs, which is of pertinent interest as BHs have been linked to the development of a future diagnosis of clinically impairing grief. A valid measure of BHs needs to be developed and used in high-quality epidemiological research using population-based designs.

Kirschner, H., W. Kuyken, et al. (2019). **"Soothing your heart and feeling connected: A new experimental paradigm to study the benefits of self-compassion."** *Clinical Psychological Science* 0(0): 2167702618812438.  
<https://journals.sagepub.com/doi/abs/10.1177/2167702618812438>

(Available in free full text) Self-compassion and its cultivation in psychological interventions are associated with improved mental health and well-being. However, the underlying processes for this are not well understood. We randomly assigned 135 participants to study the effect of two short-term self-compassion exercises on self-reported-state mood and psychophysiological responses compared to three control conditions of negative (rumination), neutral, and positive (excitement) valence. Increased self-reported-state self-compassion, affiliative affect, and decreased self-criticism were found after both self-compassion exercises and the positive-excitement condition. However, a psychophysiological response pattern of reduced arousal (reduced heart rate and skin conductance) and increased parasympathetic activation (increased heart rate variability) were unique to the self-compassion conditions. This pattern is associated with effective emotion regulation in times of adversity. As predicted, rumination triggered the opposite pattern across self-report and physiological responses. Furthermore, we found partial evidence that physiological arousal reduction and parasympathetic activation precede the experience of feeling safe and connected.

Margana, L., M. S. Bhogal, et al. (2019). **"The roles of altruism, heroism, and physical attractiveness in female mate choice." Personality and Individual Differences** 137: 126-130.  
<http://www.sciencedirect.com/science/article/pii/S0191886918304586>

The role of prosocial behaviour in female mate choice has been extensively explored, focusing on the desirability of altruism in potential mates, as well as altruism being a mating signal. However, little research has focused on the desirability of heroism and altruism in potential partners. Furthermore, the synergistic effect of attractiveness on the desirability of prosocial behavior has only recently been explored, and to our knowledge, has not been explored in relation to the desirability of heroism in a romantic partner. We explored the effect of prosociality and attractiveness on female desirability ratings ( $n = 198$ ), and whether desirability was influenced by whether women were seeking a short-term or long-term relationship. We find that women are attracted to men who display heroism and altruism, and this preference is higher when the male is attractive compared to unattractive. Furthermore, preferences for prosocial traits were higher when seeking a long-term compared to a short-term partner. Our findings add to the literature on prosocial behaviour and mate choice. Data and materials [Open Science Framework Project A76P8].

Millière, R., R. L. Carhart-Harris, et al. (2018). **"Psychedelics, meditation, and self-consciousness."** *Frontiers in psychology* 9: 1475-1475. <https://www.ncbi.nlm.nih.gov/pubmed/30245648>  
<https://www.ncbi.nlm.nih.gov/pmc/PMC6137697/>

(Available in free full text) In recent years, the scientific study of meditation and psychedelic drugs has seen remarkable developments. The increased focus on meditation in cognitive neuroscience has led to a cross-cultural classification of standard meditation styles validated by functional and structural neuroanatomical data. Meanwhile, the renaissance of psychedelic research has shed light on the neurophysiology of altered states of consciousness induced by classical psychedelics, such as psilocybin and LSD, whose effects are mainly mediated by agonism of serotonin receptors. Few attempts have been made at bridging these two domains of inquiry, despite intriguing evidence of overlap between the phenomenology and neurophysiology of meditation practice and psychedelic states. In particular, many contemplative traditions explicitly aim at dissolving the sense of self by eliciting altered states of consciousness through meditation, while classical psychedelics are known to produce significant disruptions of self-consciousness, a phenomenon known as drug-induced ego dissolution. In this article, we discuss available evidence regarding convergences and differences between phenomenological and neurophysiological data on meditation practice and psychedelic drug-induced states, with a particular emphasis on alterations of self-experience. While both meditation and psychedelics may disrupt self-consciousness and underlying neural processes, we emphasize that neither meditation nor psychedelic states can be conceived as simple, uniform categories. Moreover, we suggest that there are important phenomenological differences even between conscious states described as experiences of self-loss. As a result, we propose that self-consciousness may be best construed as a multidimensional construct, and that "self-loss," far from being an unequivocal phenomenon, can take several forms. Indeed, various aspects of self-consciousness, including narrative aspects linked to autobiographical memory, self-related thoughts and mental time travel, and embodied aspects rooted in multisensory processes, may be differently affected by psychedelics and meditation practices. Finally, we consider long-term outcomes of experiences of self-loss induced by meditation and psychedelics on individual traits and prosocial behavior. We call for caution regarding the problematic conflation of temporary states of self-loss with "selflessness" as a behavioral or social trait, although there is preliminary evidence that correlations between short-term experiences of self-loss and long-term trait alterations may exist.

Muise, A., C. Harasymchuk, et al. (2019). **"Broadening your horizons: Self-expanding activities promote desire and satisfaction in established romantic relationships."** *Journal of Personality and Social Psychology* 116: 237-258.  
<http://psycnet.apa.org/record/2018-47337-001>

In the early stages of romantic relationships, sexual desire is often intense, but over time, as partners get to know each other, desire tends to decline. Low sexual desire has negative implications for relationship satisfaction and maintenance. Self-expansion theory suggests that engaging in novel activities with a long-term romantic partner can reignite feelings of passion from the early stages of a relationship. Across 3 studies using dyadic, daily experience, longitudinal, and experimental methods, we find evidence for our central prediction that engaging in self-expanding activities with a partner is associated with higher sexual desire. In turn, we found that higher desire fueled by self-expansion is associated with greater relationship satisfaction. Self-expansion, through sexual desire, is also associated with an increased likelihood that couples will engage in sex, and when they do engage in sex, they feel more satisfied with their sexual experiences. We also demonstrate that the benefits of self-expansion for relationship satisfaction are sustained over time, and that the effects cannot be attributed solely to increases in positive affect, time spent interacting with the partner or closeness during the activity. Implications for self-expansion theory and sexual desire maintenance in relationships are discussed.

Murphy, M. L. M., D. Janicki-Deverts, et al. (2018). **"Receiving a hug is associated with the attenuation of negative mood that occurs on days with interpersonal conflict."** *PLOS ONE* 13(10): e0203522.  
<https://doi.org/10.1371/journal.pone.0203522>

(Available in free full text) Interpersonal touch is emerging as an important topic in the study of adult relationships, with recent research showing that such behaviors can promote better relationship functioning and individual well-being. This investigation considers whether being hugged is associated with reduced conflict-related decreases in positive affect and increases in negative affect as well as whether these associations differ between women and men. A sample of 404 adults were interviewed every night for 14 consecutive days about their conflicts, hug receipt, and positive and negative affect. Results indicated that there was an interaction between hug receipt and conflict exposure such that receiving a hug was associated with a smaller conflict-related decrease in positive affect and a smaller conflict-related increase in negative affect when assessed concurrently. Hug receipt was also prospectively associated with a smaller conflict-related increase in next day negative affect but was not associated with next day positive affect. Associations between hug receipt and conflict-related changes in affect did not differ between women and men, between individuals who were married or in a marital-like relationship and those who were not, or as a function of individual differences in baseline perceived social support. While correlational, these results are consistent with the hypothesis that hugs buffer against deleterious changes in affect associated with experiencing interpersonal conflict. Possible mechanisms through which hugs facilitate positive adaptation to conflict are discussed.

Naismith, I., S. Zarate Guerrero, et al. (2019). **"Abuse, invalidation, and lack of early warmth show distinct relationships with self-criticism, self-compassion, and fear of self-compassion in personality disorder."** *Clinical Psychology & Psychotherapy* 0(0). <https://onlinelibrary.wiley.com/doi/abs/10.1002/cpp.2357>

Abstract Background Cultivating self-compassion is increasingly recognized as a powerful method to regulate hyperactive threat processes such as shame and self-criticism, but fear of self-compassion (FSC) can inhibit this. These difficulties are underexplored in personality disorder (PD) despite their prevalence. Furthermore, little evidence exists regarding how these factors relate to adverse childhood experiences (ACEs) and attachment. Method Fifty-three participants with a diagnosis of PD completed measures including childhood abuse/neglect, invalidation, early warmth, self-compassion, shame, self-criticism, FSC, and anxious/avoidant attachment. Results Self-compassion was predicted uniquely by low early warmth; self-inadequacy by invalidation and abuse; and FSC by multiple ACEs. FSC and self-compassion were significantly correlated with self-criticism and shame, but not with one another. Conclusions Low self-compassion and high FSC appear to be distinct problems, substantiating physiological models proposing distinct threat and soothing systems. Results are consistent with theories positing that low self-compassion has distinct origins to shame, self-criticism, and FSC.

Nidich, S., P. J. Mills, et al. (2018). **"Non-trauma-focused meditation versus exposure therapy in veterans with post-traumatic stress disorder: A randomised controlled trial."** *The Lancet Psychiatry* 5(12): 975-986.  
<http://www.sciencedirect.com/science/article/pii/S2215036618303845>

Summary Background Post-traumatic stress disorder (PTSD) is a complex and difficult-to-treat disorder, affecting 10–20% of military veterans. Previous research has raised the question of whether a non-trauma-focused treatment can be as effective as trauma exposure therapy in reducing PTSD symptoms. This study aimed to compare the non-trauma-focused practice of Transcendental Meditation (TM) with prolonged exposure therapy (PE) in a non-inferiority clinical trial, and to

compare both therapies with a control of PTSD health education (HE). Methods We did a randomised controlled trial at the Department of Veterans Affairs San Diego Healthcare System in CA, USA. We included 203 veterans with a current diagnosis of PTSD resulting from active military service randomly assigned to a TM or PE group, or an active control group of HE, using stratified block randomisation. Each treatment provided 12 sessions over 12 weeks, with daily home practice. TM and HE were mainly given in a group setting and PE was given individually. The primary outcome was change in PTSD symptom severity over 3 months, assessed by the Clinician-Administered PTSD Scale (CAPS). Analysis was by intention to treat. We hypothesised that TM would show non-inferiority to PE in improvement of CAPS score ( $\Delta=10$ ), with TM and PE superior to PTSD HE. This study is registered with ClinicalTrials.gov, number NCT01865123. Findings Between June 10, 2013, and Oct 7, 2016, 203 veterans were randomly assigned to an intervention group (68 to the TM group, 68 to the PE group, and 67 to the PTSD HE group). TM was significantly non-inferior to PE on change in CAPS score from baseline to 3-month post-test (difference between groups in mean change  $-5.9$ , 95% CI  $-14.3$  to  $2.4$ ,  $p=0.0002$ ). In standard superiority comparisons, significant reductions in CAPS scores were found for TM versus PTSD HE ( $-14.6$  95% CI,  $-23.3$  to  $-5.9$ ,  $p=0.0009$ ), and PE versus PTSD HE ( $-8.7$  95% CI,  $-17.0$  to  $-0.32$ ,  $p=0.041$ ). 61% of those receiving TM, 42% of those receiving PE, and 32% of those receiving HE showed clinically significant improvements on the CAPS score. Interpretation A non-trauma-focused-therapy, TM, might be a viable option for decreasing the severity of PTSD symptoms in veterans and represents an efficacious alternative for veterans who prefer not to receive or who do not respond to traditional exposure-based treatments of PTSD. Funding Department of Defense, US Army Medical Research.

O'Brien, E. and S. Kassirer (2019). **"People are slow to adapt to the warm glow of giving."** *Psychological Science* 30(2): 193-204. <https://journals.sagepub.com/doi/abs/10.1177/0956797618814145>

People adapt to repeated getting. The happiness we feel from eating the same food, from earning the same income, and from many other experiences quickly decreases as repeated exposure to an identical source of happiness increases. In two preregistered experiments ( $N = 615$ ), we examined whether people also adapt to repeated giving—the happiness we feel from helping other people rather than ourselves. In Experiment 1, participants spent a windfall for 5 days ( $\$5.00$  per day on the same item) on themselves or another person (the same one each day). In Experiment 2, participants won money in 10 rounds of a game ( $\$0.05$  per round) for themselves or a charity of their choice (the same one each round). Although getting elicited standard adaptation (happiness significantly declined), giving did not grow old (happiness did not significantly decline; Experiment 1) and grew old more slowly than equivalent getting (happiness declined at about half the rate; Experiment 2). Past research suggests that people are inevitably quick to adapt in the absence of change. These findings suggest otherwise: The happiness we get from giving appears to sustain itself.

Park, Y. C. and T. Pyszczynski (2019). **"Reducing defensive responses to thoughts of death: Meditation, mindfulness, and buddhism."** *Journal of Personality and Social Psychology* 116: 101-118. <https://psycnet.apa.org/doiLanding?doi=10.1037%2Fpspp0000163>

Three studies investigated the effects of meditation on responses to reminders of death. Study 1 took a quasi-experimental approach, comparing defensive responses to mortality salience (MS) of South Korean participants with varying levels of experience with Buddhism and meditation. Whereas non-Buddhists without meditation showed the typical increase in worldview defense after mortality salience (MS), this effect was not found among non-Buddhists immediately after an initial meditation experience, nor among lay Buddhists who meditated regularly or Buddhist monks with intensive meditation experience. Study 2, a fully randomized experiment, showed that MS increased worldview defense among South Koreans at a meditation training who were assessed before meditating but not among participants assessed after their first meditation experience. Study 3 showed that whereas American students without prior meditation experience showed increased worldview defense and suppression of death-related thoughts after MS, these effects were eliminated immediately after an initial meditation experience. Death thought accessibility mediated the effect of MS on worldview defense without meditation, but meditation eliminated this mediation.

Rottenberg, J., A. R. Devendorf, et al. (2018). **"The curious neglect of high functioning after psychopathology: The case of depression."** *Perspectives on Psychological Science* 13(5): 549-566. <https://journals.sagepub.com/doi/abs/10.1177/1745691618769868>

We address a key issue at the intersection of emotion, psychopathology, and public health—the startling lack of attention to people who experience benign outcomes, and even flourish, after recovering from depression. A rereading of the epidemiological literature suggests that the orthodox view of depression as chronic, recurrent, and lifelong is overstated. A significant subset of people recover and thrive after depression, yet research on such individuals has been rare. To facilitate work on this topic, we present a generative research framework. This framework includes (a) a proposed definition of healthy end-state functioning that goes beyond a reduction in clinical symptoms, (b) recommendations for specific measures to assess high functioning, and (c) a road map for a research agenda aimed at discovering how and why people flourish after emotional disturbance. Given that depression remains the most burdensome health condition worldwide, focus on what makes these excellent outcomes possible has enormous significance for the public health.

Seli, P., R. E. Beaty, et al. (2018). **"How pervasive is mind wandering, really?"** *Consciousness and Cognition* 66: 74-78. <http://www.sciencedirect.com/science/article/pii/S1053810018302411>

Recent claims that people spend 30–50% of their waking lives mind wandering (Killingsworth & Gilbert, 2010; Kane et al., 2007) have become widely accepted and frequently cited. While acknowledging attention to be inconstant and wavering, and mind wandering to be ubiquitous, we argue and present evidence that such simple quantitative estimates are misleading and potentially meaningless without serious qualification. Mind-wandering estimates requiring dichotomous judgments of inner experience rely on questionable assumptions about how such judgments are made, and the resulting data do not permit straightforward interpretation. We present evidence that estimates of daily-life mind wandering vary dramatically depending on the response options provided. Offering participants a range of options in estimating task engagement yielded variable mind-wandering estimates, from approximately 60% to 10%, depending on assumptions made about how observers make introspective judgments about their mind-wandering experiences and how they understand what it means to be on- or off-task.

Travis, F., L. Valosek, et al. (2018). **"Effect of meditation on psychological distress and brain functioning: A randomized controlled study."** *Brain and Cognition* 125: 100-105. <http://www.sciencedirect.com/science/article/pii/S0278262617304335>

Background Psychological stability and brain integration are important factors related to physical and mental health and organization effectiveness. This study tested whether a mind-body technique, the Transcendental Meditation (TM) program could increase EEG brain integration and positive affect, and decrease psychological distress in government employees. Method Ninety-six central office administrators and staff at the San Francisco Unified School District were randomly assigned to either immediate start of the TM program or to a wait-list control group. At baseline and four-month posttest, participants completed

an online version of the Profile of Mood States questionnaire (POMS). In addition, a subset of this population (N = 79) had their EEG recorded at baseline and at four-month posttest to calculate Brain Integration Scale (BIS) scores. Results At posttest, TM participants significantly decreased on the POMS Total Mood Disturbance and anxiety, anger, depression, fatigue, and confusion subscales, and significantly increased in the POMS vigor subscale. TM participants in the EEG-subgroup also significantly increased in BIS scores. Compliance with meditation practice was high (93%). Conclusion Findings indicate the feasibility and effectiveness of implementing the TM program to improve brain integration and positive affect and reduce psychological distress in government administrators and staff.

Vehling, S., Y. Tian, et al. (2019). **"Attachment security and existential distress among patients with advanced cancer."** *Journal of Psychosomatic Research* 116: 93-99. <http://www.sciencedirect.com/science/article/pii/S0022399918307670>

(Available in free full text) Background Felt security in close relationships may affect individual adaptation responses to existential threat in severe illness. We examined the contribution of attachment security to demoralization, a state of existential distress involving perceived pointlessness and meaninglessness in advanced cancer. Method A mixed cross-sectional sample of 382 patients with advanced cancer (mean age 59, 60% female) was recruited from outpatient oncology clinics. Participants completed self-report measures of attachment security, demoralization, depression, and physical symptom burden. We used multiple linear regression to analyze the association between attachment security and demoralization, controlling for demographic factors and symptom burden and tested whether attachment security moderated the association of symptom burden with demoralization. Separate analyses compared the contribution of the dimensions of attachment anxiety and attachment avoidance. Results The prevalence of clinically relevant demoralization was 35%. Demoralization was associated with lower attachment security ( $\beta = -0.54$ , 95%CI:  $-0.62$  to  $0.46$ ). This effect was empirically stronger for attachment anxiety ( $\beta = 0.52$ , 95%CI:  $0.44$  to  $0.60$ ) compared to attachment avoidance ( $\beta = 0.36$ , 95%CI:  $0.27$  to  $0.45$ ). Attachment security also significantly moderated the association of physical symptom burden with demoralization, such that with less attachment security, there was a stronger association between symptom burden and demoralization. Conclusion Attachment security may protect from demoralization in advanced cancer. Its relative lack, particularly on the dimension of attachment anxiety, may limit adaptive capacities to deal with illness burden and to sustain morale and purpose in life. An understanding of individual differences in attachment needs can inform existential interventions for severely ill individuals.

Vollbehr, N. K., A. A. Bartels-Velthuis, et al. (2018). **"Hatha yoga for acute, chronic and/or treatment-resistant mood and anxiety disorders: A systematic review and meta-analysis."** *PLOS ONE* 13(10): e0204925. <https://doi.org/10.1371/journal.pone.0204925>

(Available in free full text) Background The aim of this study was to systematically investigate the effectiveness of hatha yoga in treating acute, chronic and/or treatment-resistant mood and anxiety disorders. Methods Medline, Cochrane Library, Current Controlled Trials, Clinical Trials.gov, NHR Centre for Reviews and Dissemination, PsycINFO and CINAHL were searched through June 2018. Randomized controlled trials with patients with mood and anxiety disorders were included. Main outcomes were continuous measures of severity of mood and anxiety symptoms. Cohen's d was calculated as a measure of effect size. Meta-analyses using a random effects model was applied to estimate direct comparisons between yoga and control conditions for depression and anxiety outcomes. Publication bias was visually inspected using funnel plots. Results Eighteen studies were found, fourteen in acute patients and four in chronic patients. Most studies were of low quality. For depression outcomes, hatha yoga did not show a significant effect when compared to treatment as usual, an overall effect size of Cohen's d  $-0.64$  (95% CI =  $-1.41$ ,  $0.13$ ) or to all active control groups, Cohen's d  $-0.13$  (95% CI =  $-0.49$ ,  $0.22$ ). A sub-analysis showed that yoga had a significant effect on the reduction of depression compared to psychoeducation control groups, Cohen's d  $-0.52$  (95% CI =  $-0.96$ ,  $-0.08$ ) but not to other active control groups, Cohen's d  $0.28$  (95% CI =  $-0.07$ ,  $0.63$ ) For studies using a follow-up of six months or more, hatha yoga had no effect on the reduction of depression compared to active control groups, Cohen's d  $-0.14$  (95% CI =  $-0.60$ ,  $0.33$ ). Regarding anxiety, hatha yoga had no significant effect when compared to active control groups, Cohen's d  $-0.09$  (95% CI =  $-0.47$ ,  $0.30$ ). The I<sup>2</sup> and Q-statistic revealed heterogeneity amongst comparisons. Qualitative analyses suggest some promise of hatha yoga for chronic populations. Conclusions The ability to draw firm conclusions is limited by the notable heterogeneity and low quality of most of the included studies. With this caveat in mind, the results of the current meta-analysis suggest that hatha yoga does not have effects on acute, chronic and/or treatment-resistant mood and anxiety disorders compared to treatment as usual or active control groups. However, when compared to psychoeducation, hatha yoga showed more reductions in depression. It is clear that more high-quality studies are needed to advance the field.

Watkins, P. C., R. A. Emmons, et al. (2018). **"Joy is a distinct positive emotion: Assessment of joy and relationship to gratitude and well-being."** *The Journal of Positive Psychology* 13(5): 522-539. <https://doi.org/10.1080/17439760.2017.1414298>

In three studies we investigated joy and its relationship to subjective well-being (SWB). We developed measures of joy based on recent conceptualizations of joy in the humanities and social sciences. In Studies 1 and 2 we developed reliable measures of state and trait joy. In Study 3 we used a two-month prospective design to investigate the relationship of joy to gratitude and SWB. We found that dispositional gratitude predicted increases in state joy over time. We also found that trait joy predicted increases in state gratitude, providing evidence for an intriguing upward spiral between joy and gratitude. Finally, we found that trait joy was associated with increases in SWB over time. Factor analyses indicated that joy loaded separately from other positive emotions. We conclude that joy is a discrete positive emotion, it can be measured reliably with self-report instruments, and that it may be an important component of well-being.

Weng, H. Y., R. C. Lapate, et al. (2018). **"Visual attention to suffering after compassion training is associated with decreased amygdala responses."** *Frontiers in Psychology* 9(771). <https://www.frontiersin.org/article/10.3389/fpsyg.2018.00771>

(Available in free full text) Compassion meditation training is hypothesized to increase the motivational salience of cues of suffering, while also enhancing equanimous attention and decreasing emotional reactivity to suffering. However, it is currently unknown how compassion meditation impacts visual attention to suffering, and how this impacts neural activation in regions associated with motivational salience as well as aversive responses, such as the amygdala. Healthy adults were randomized to two weeks of compassion or reappraisal training. We measured BOLD fMRI responses before and after training while participants actively engaged in their assigned training to images depicting human suffering or non-suffering. Eye-tracking data were recorded concurrently, and we computed looking time for socially and emotionally evocative areas of the images, and calculated visual preference for suffering vs. non-suffering. Increases in visual preference for suffering due to compassion training were associated with decreases in the amygdala, a brain region involved in negative valence, arousal, and physiological responses typical of fear and anxiety states. This pattern was specifically in the compassion group, and was not found in the reappraisal group. In addition, compassion training-related increases in visual preference for suffering were also associated with decreases in regions sensitive to valence and empathic distress, spanning the anterior insula and orbitofrontal cortex (while the reappraisal



group showed the opposite effect). Examining visual attention alone demonstrated that engaging in compassion in general (across both time points) resulted in visual attention preference for suffering compared to engaging in reappraisal. Collectively, these findings suggest that compassion meditation may cultivate visual preference for suffering while attenuating neural responses in regions typically associated with aversive processing of negative stimuli, which may cultivate a more equanimous and nonreactive form of attention to stimuli of suffering.