

Mindfulness – Navigating the Science and the Hype

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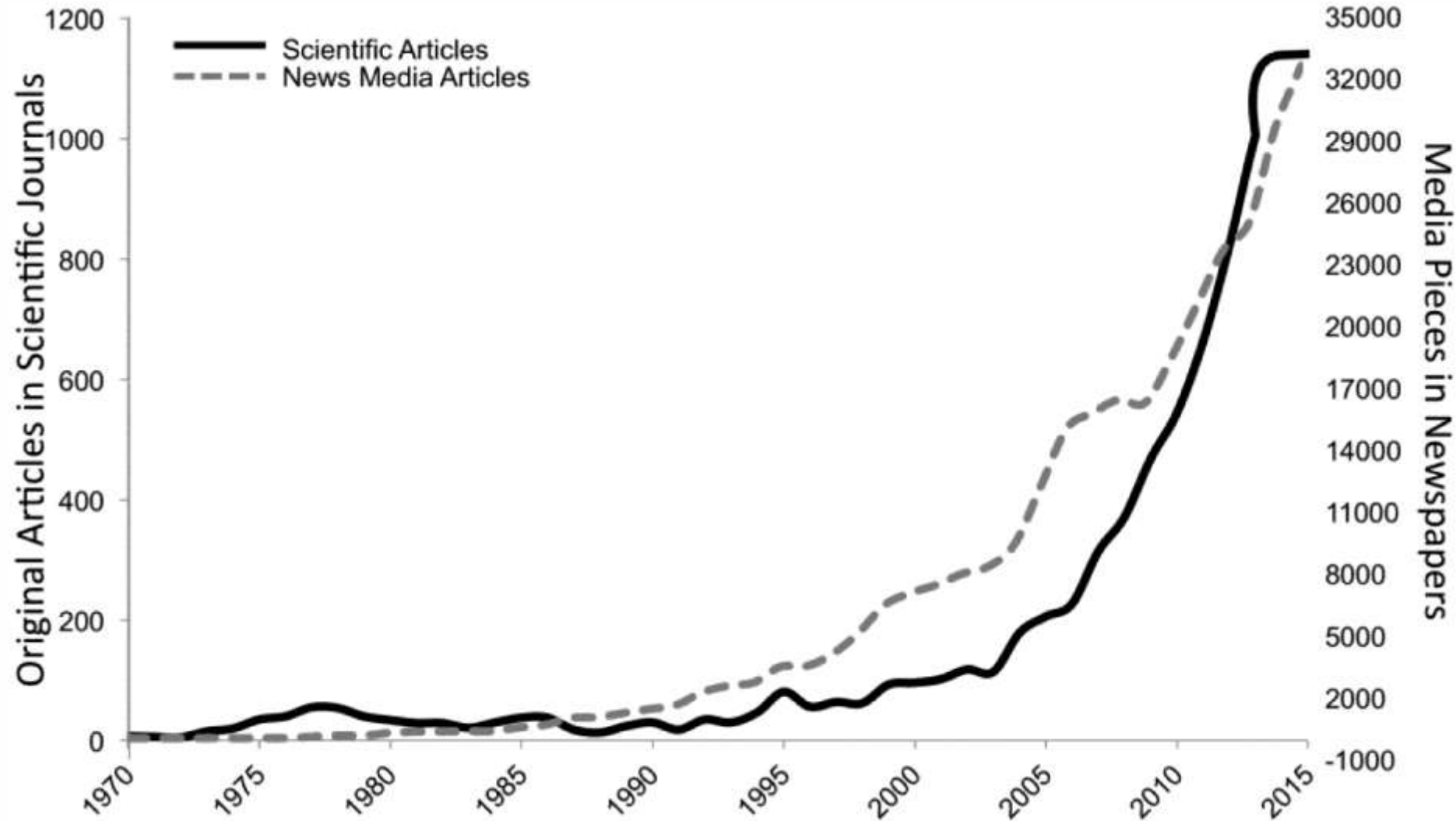
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Mindfulness Research

- There has been a proliferation of mindfulness based programmes (MBPs) since Jon Kabat-Zinn developed Mindfulness Based Stress Reduction (MBSR) in the late 1970s.
- However, the research base for most of these MBPs is minimal or non-existent. The main exceptions are:
 - MBSR
 - Mindfulness Based Cognitive Therapy (MBCT) – which combines the framework of MBSR with elements of CBT.
- A key event was the inclusion of MBCT in the 2004 NICE guidelines for depression following two initial research trials.
- NICE recommended MBCT for the prevention of relapse in people with 3 or more episodes of depression.

<https://www.nice.org.uk/guidance/cg23>

Mindfulness in Research & in the Media



From: Van Dam, N. T., van Vugt, M. K., Vago, D. R., Schmalzl, L., Saron, C. D., Olendzki, A., ... & Fox, K. C. (2018). Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on Psychological Science*, 13(1), 36-61.

MBPs: The Evidence Base

- Most teachers and participants of MBSR, MBCT and other MBPs will have many accounts of transformative positive experiences associated with these approaches.
- Meta-analyses of MBPs are generally positive.
 - For example, a major meta-analysis by Goyal et al (2014) found that MBPs:
are comparable with what would be expected from the use of an antidepressant in a primary care population but without the associated toxicities. (Goyal et al., 2014, p. 364).

Goyal, M., Singh, S., Sibinga, E. M., Gould, N. F., Rowland-Seymour, A., Sharma, R., ... & Haythornthwaite, J. A. (2014). Meditation programs for psychological stress and well-being: a systematic review and meta-analysis. *JAMA Internal Medicine*, 174(3), 357-368.

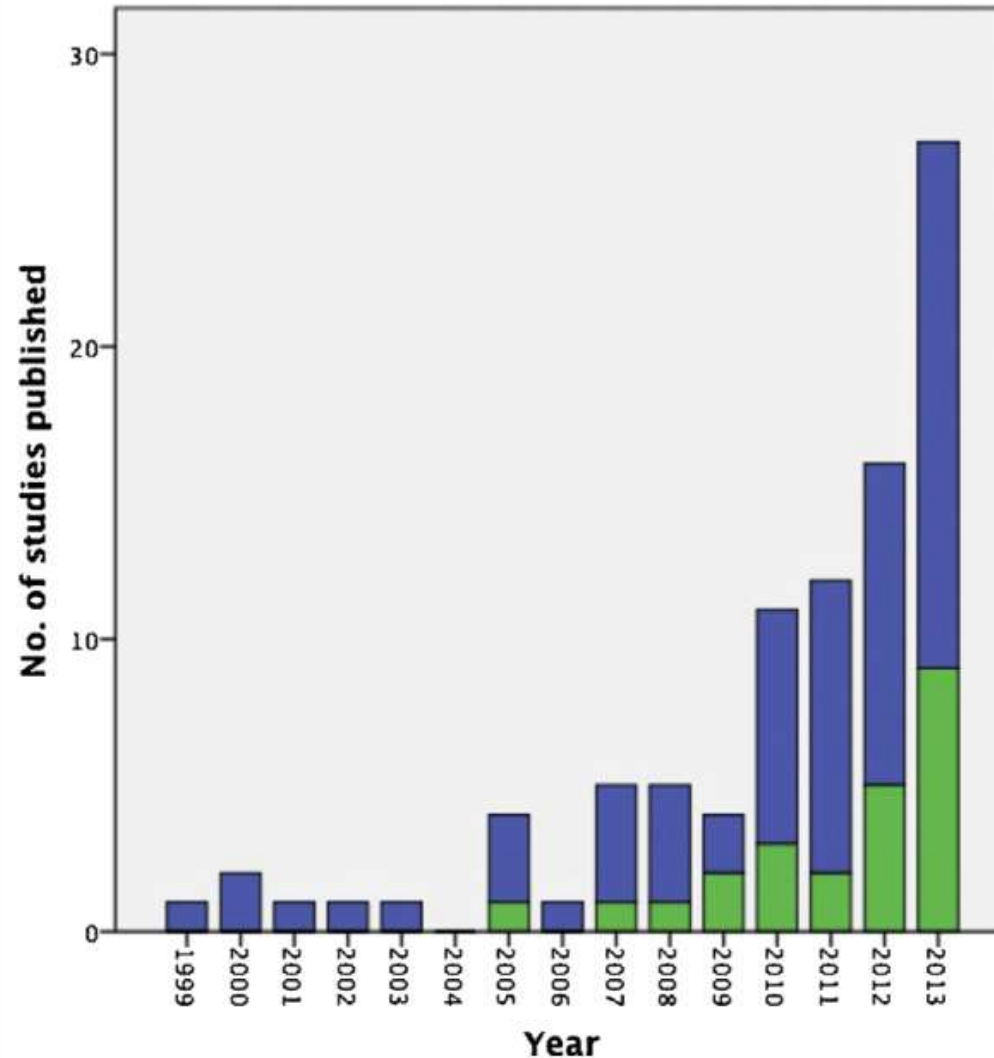
MBPs: The Evidence Base

- Importantly, evidence from brain imaging supports the view that mindfulness practice is associated with some consistent effects on brain activity and structure (Tang et al, 2015; Fox et al, 2016).

Fox, K. C., Dixon, M. L., Nijeboer, S., Girn, M., Floman, J. L., Lifshitz, M., ... & Christoff, K. (2016). Functional neuroanatomy of meditation: A review and meta-analysis of 78 functional neuroimaging investigations. *Neuroscience & Biobehavioral Reviews*, 65, 208-228.

Tang, Y. Y., Hölzel, B. K., & Posner, M. I. (2015). The neuroscience of mindfulness meditation. *Nature Reviews Neuroscience*, 16(4), 213-225.

Brain Imaging Mindfulness Research

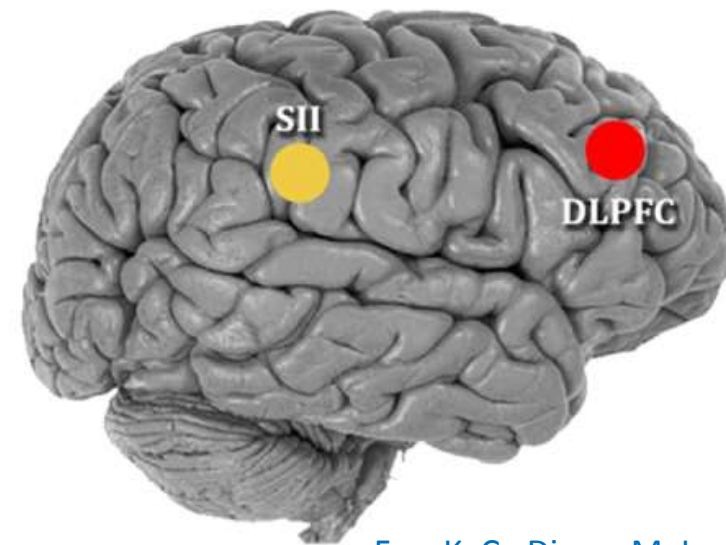
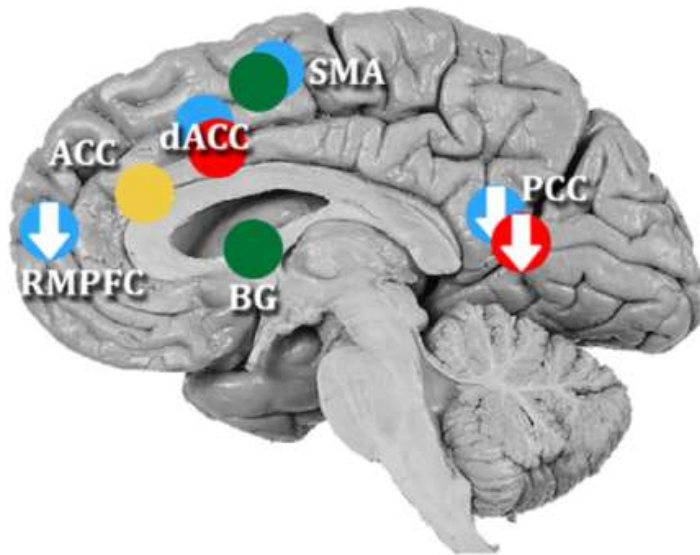
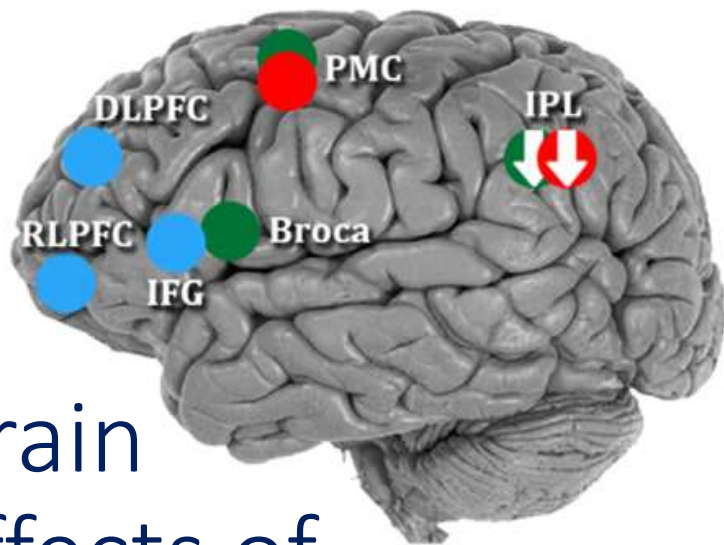


- Changing brain function studies
- Changing brain structure studies

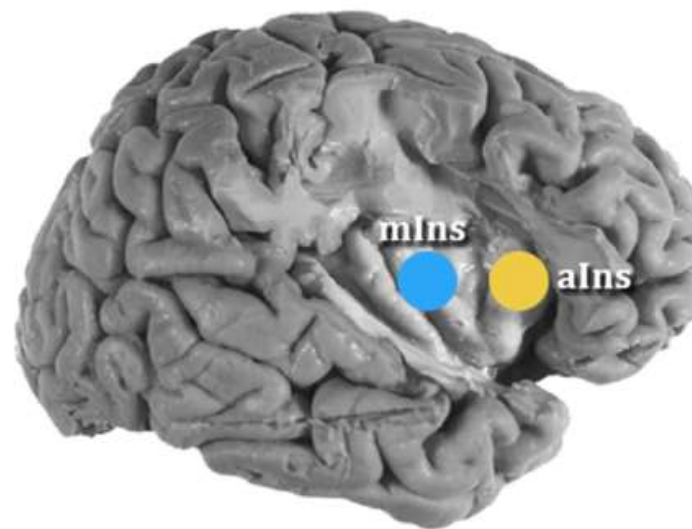
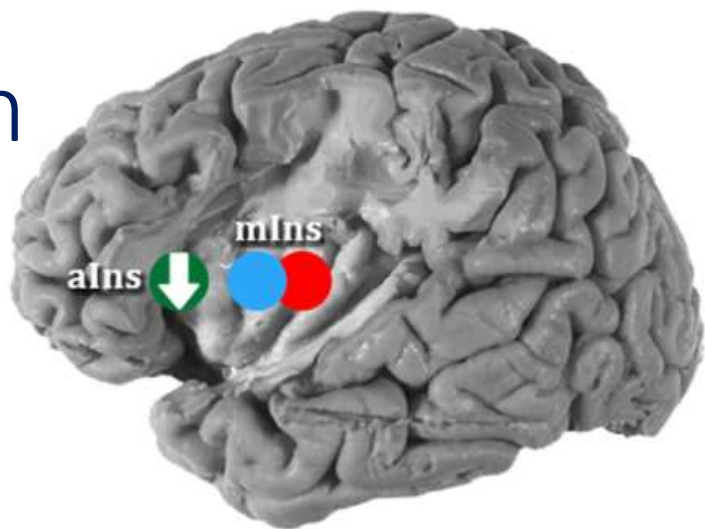
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Mindful Living Show 2018

● Focused Attention ● Open Monitoring ● Mantra Recitation ● Loving-kindness/Compassion



Brain Effects of Meditation



Fox, K. C., Dixon, M. L., Nijeboer, S., Girn, M., Floman, J. L., Lifshitz, M., ... & Christoff, K. (2016). Functional neuroanatomy of meditation: A review and meta-analysis of 78 functional neuroimaging investigations. *Neuroscience & Biobehavioral Reviews*, 65, 208-228

Mindfulness Research Challenges

- Minimal funding availability: no patents possible for mindfulness...

Mindfulness Research Challenges

- No standard definition of mindfulness (Van Dam 2017).
 - Is one even possible, given the nature of mindful awareness (Williams et al, 2013)?
 - Even within Buddhism, definitions and conceptualisations of mindfulness vary widely across different Buddhist traditions (Dunne, 2015).

Van Dam, N. T., van Vugt, M. K., Vago, D. R., Schmalzl, L., Saron, C. D., Olendzki, A., ... & Fox, K. C. (2018). Mind the hype: A critical evaluation and prescriptive agenda for research on mindfulness and meditation. *Perspectives on Psychological Science*, 13(1), 36-61.

Williams, J. M. G., & Kabat-Zinn, J. (Eds.). (2013). *Mindfulness: Diverse perspectives on its meaning, origins and applications*. New York: Routledge.

Dunne, J. D. (2015). Buddhist styles of mindfulness: A heuristic approach. In *Handbook of mindfulness and self-regulation* (pp. 251-270). Springer, New York, NY.

Mindfulness Research Challenges

- Variation in types of mindfulness practice in different MBPs.
 - This makes comparisons of different MBPs difficult to interpret.
 - What is being called 'mindfulness' and then taught may not be what participants are actually practicing (Rosch, 2015).

Rosch, E. (2015). The emperor's clothes: A look behind the Western mindfulness mystique. In *Handbook of mindfulness and self-regulation* (pp. 271-292). New York: Springer.

Mindfulness Research Challenges

- **Mindfulness is hard to measure** (Park et al 2013; Van Dam 2017).
 - Given that mindfulness increases self-awareness, someone who rates themselves as being mindful at the start of a course may, with more self-awareness, rate themselves as less mindful at the end.
 - The measures may not actually be measuring mindfulness but rather general factors of mental health and wellbeing (Rosch, 2015).

Park, T., Reilly-Spong, M., & Gross, C. R. (2013). Mindfulness: a systematic review of instruments to measure an emergent patient-reported outcome (PRO). *Quality of Life Research*, 22(10), 2639-2659.

Rosch, E. (2015). The emperor's clothes: A look behind the Western mindfulness mystique. In *Handbook of mindfulness and self-regulation* (pp. 271-292). New York: Springer.

Mindfulness Research Challenges

- No meaningful placebo and lack of comparable controls in many studies.
 - An 8 week mindfulness course as the intervention group and ADM taken with minimal contact with health workers as the control group are not comparable interventions.
 - Comparing an 8 week mindfulness course to another weekly group intervention would be more meaningful.

Mindfulness Research Challenges

- Brain imaging studies measure correlations and are the average of many scans of people.
 - Is it mindfulness that is the factor directly responsible for the correlations found?
 - Or could it be something else about meditators that indirectly alters brain function or structure? E.g. meditators may have lower blood pressure, breathe more slowly and/or are stiller in brain scanners.
 - The model used to interpret brain scans, based on specific brain areas responsible for a basic set of human emotions, is being challenged by social construction models (Barrett, 2017).

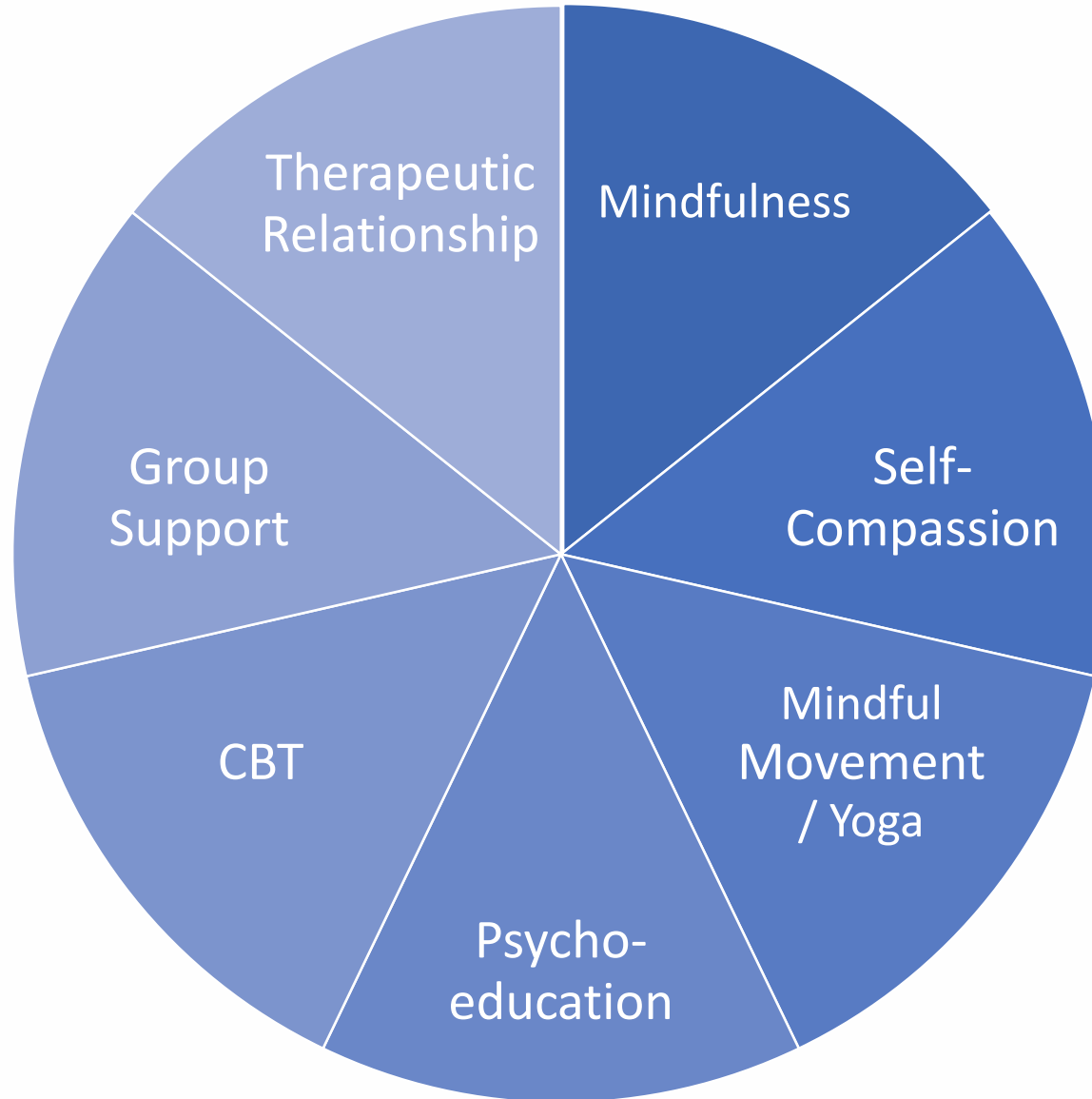
Barrett, L. F. (2017). The theory of constructed emotion: an active inference account of interoception and categorization. *Social cognitive and affective neuroscience*, 12(1), 1-23.

Barrett, L. F. (2017). *How emotions are made: The secret life of the brain*. New York: Houghton Mifflin Harcourt.

Mindfulness Research Challenges

- A lack of component analyses of MBPs Curricula.
 - While mindfulness itself can be shown to have psychological and physiological effects in isolation, MBPs are a complex mixture of different components.

Which
Component is
Most Helpful?



Which Practice is Most Helpful?



Mindfulness Research Challenges

- A lack of component analyses of MBPs Curricula.
 - Component analysis attempts to identify which elements of a mindfulness course are associated with the therapeutic effect.
 - This means MBPs lack research support for:
 - Which components are associated with therapeutic effects.
 - How a component can be delivered most effectively.
 - The MBSR curriculum development did not go through the lengthy process of incremental and iterative clinical evolution common to most therapeutic interventions.
 - This is perhaps because the curriculum is based on a vision for the MBSR programme Jon Kabat-Zinn experienced on a retreat in 1979 (Williams & Kabat-Zinn, 2013, p287).
 - Research is lacking about which specific practices are best suited in which part of the course and what length or format is most appropriate.

Mindfulness Research Challenges

- Until recently, most research has been quantitative: focused on measuring outcomes.
- Qualitative research exploring participant experience has been minimal:
 - Consequently we do not know what MBP participants are actually doing/learning when they say they are practicing 'mindfulness' (Rosch, 2015).
 - Recent research by Lindahl et al (2017) and Burrows (2017) suggests that there may be significant negative mindfulness experiences being unreported by participants.
 - Linked concerns about the risks associated with body- or breath-based mindfulness approaches coupled with long periods of closed-eye, static practice (Lindahl et al, 2017; Burrows, 2017; Treleaven, 2018).

Lindahl, J. R., Fisher, N. E., Cooper, D. J., Rosen, R. K., & Britton, W. B. (2017). The varieties of contemplative experience: A mixed-methods study of meditation-related challenges in Western Buddhists. *PLoS one*, 12(5), e0176239.

Burrows, L. (2017). *Safeguarding Mindfulness in Schools and Higher Education: A Holistic and Inclusive Approach*. New York: Routledge.

Burrows, L., & Burrows, L. (2017). "I feel proud we are moving forward": safeguarding mindfulness for vulnerable student and teacher wellbeing in a community college. *The Journal of Adult Protection*, 19(1), 33-46.

Rosch, E. (2015). The emperor's clothes: A look behind the Western mindfulness mystique. In *Handbook of mindfulness and self-regulation* (pp. 271-292). New York: Springer.

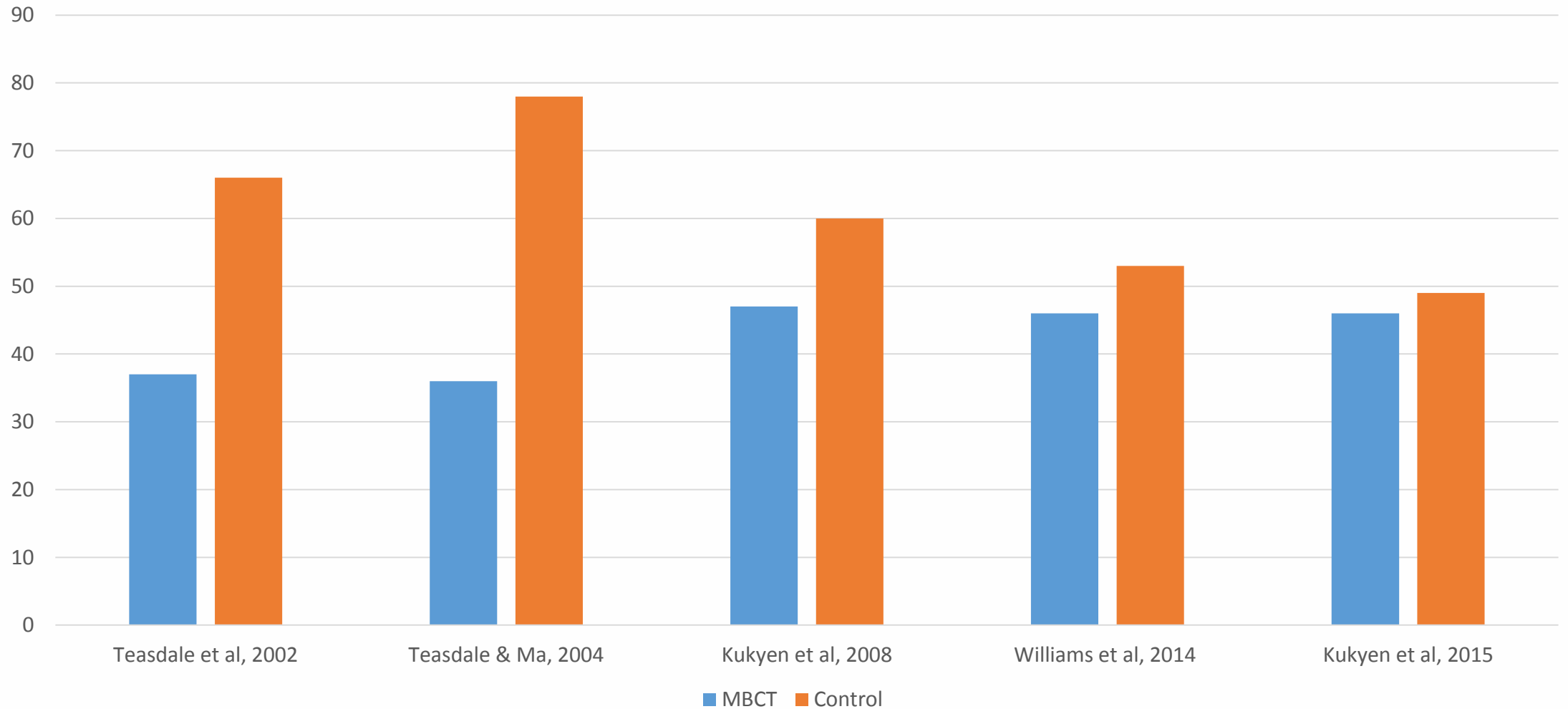
Treleaven, D. (2018) *Trauma-Sensitive Mindfulness: Practices for Safe and Transformative Healing*. New York: Guilford.

MBCT: A Changing Picture

- The early trials of MBCT for depression showed very significant reductions in relapse compared to usual treatments.
- More recent studies have shown MBCT has similar outcomes compared to usual treatment or psychoeducation (although a sub-group of those with high childhood trauma do experience significant benefits).
 - This could be due to improving relapse prevention, better research methodology, or to MBCT being offered without the close guidance of its originators (Coyne, 2016)
- Positively, MBCT, while more potential expensive, is offering a drug free approach that can initiate lasting behavioural and cognitive changes, especially in those with childhood trauma histories.

James Coyne (2016) <http://blogs.plos.org/mindthebrain/2015/05/20/is-mindfulness-based-therapy-ready-for-rollout-to-prevent-relapse-and-recurrence-in-depression>

UK MBCT Trials – Depression Relapse Rates



UK MBCT Trials: Relapse rates in trials with people in remission from depression (3+ prior episodes)

Outcomes	Study
MBCT 37% relapse vs Treatment as Usual (TAU) 66%	Teasdale et al, 2002
MBCT 36% relapse vs TAU 78%	Teasdale & Ma, 2004
MBCT 47% relapse vs Anti-Depressant medication (ADM) 60%. Same costs @ 12 months	Kukyen et al, 2008
Overall = MBCT 46% relapse vs Psychoeducation 50% vs TAU 53%. <i>[No clinically significant difference MBCT & Psychoeducation]</i> Low Childhood Trauma Subgroup = <u>MBCT 51% relapse vs Psychoeducation 45% vs TAU 43%</u> High Childhood Trauma Subgroup = MBCT 41% relapse vs Psychoeducation 54% vs TAU 65%	Williams et al, 2014
Overall = MBCT with tapering of ADM 46% relapse vs ADM 49%. <i>[No clinically significant difference]</i> . MBCT more expensive @ 24 months; MBCT less cost effective ADM. Low Childhood Trauma Subgroup = <u>MBCT 42% relapse vs ADM 35%</u> High Childhood Trauma Subgroup = MBCT 47% relapse vs ADM 59%	Kukyen et al, 2015

Huijbers et al (2016) in the Netherlands found MBCT with ADM had a reduced relapse rate compared to MBCT and ADM withdrawal.

MBPs: Both Old and New

- MBSR has remained largely unchanged since 1979.
- MBCT, developed in the early 2000s, has had a minor manual revision in 2012 (Segal et al. 2012).
- MBSR and MBCT are well established but not evolving beyond what are, essentially, the initial versions of these MBPs.
- There is a move to define MBPs by the manualised curricula of these initial versions (Crane et al, 2017).
 - Is the non-evolved nature of the MBSR curriculum (Kabat-Zinn, 2013) the best basis for defining MBPs, especially with the lack of component analyses?
 - Is more clinical evolution required before concretising the format of MBPs?

Crane, R. S., Brewer, J., Feldman, C., Kabat-Zinn, J., Santorelli, S., Williams, J. M. G., & Kuyken, W. (2017). What defines mindfulness-based programs? The warp and the weft. *Psychological medicine*, 47(6), 990-999.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2012). *Mindfulness-based cognitive therapy for depression*. London: Guilford Press

Williams, J. M. G., & Kabat-Zinn, J. (Eds.). (2013). *Mindfulness: Diverse perspectives on its meaning, origins and applications*. New York: Routledge

Enthusiasm Ahead of the Evidence...

- There are concerns that:
 - there is '*enthusiasm ahead of the evidence*' (Farias & Wikholm, 2016)
 - the evidence base needs significantly developing to identify what specific mindfulness intervention is most suitable for people experiencing a particular **ISSUE** (Farias & Wikholm, 2016; Van Dam et al, 2017)
- Rosch (2015) raises crucial (and so far unanswered) questions about what participants are actually learning on MBPs: it may not be mindfulness.
- Van Dam et al's (2017) review is a challenging but timely reminder that the development of mindfulness, to be sustained, needs to be based on robust foundations; not hype.

Farias, M., Wikholm, C., & Delmonte, R. (2016). What is mindfulness-based therapy good for? Evidence, limitations and controversies. *Lancet Psychiatry*, 3(11), 1012-3.

Farias, M., & Wikholm, C. (2016). Has the science of mindfulness lost its mind?. *BJPsych Bull*, 40(6), 329-332.

Rosch, E. (2015). The emperor's clothes: A look behind the Western mindfulness mystique. In *Handbook of mindfulness and self-regulation* (pp. 271-292). New York: Springer.

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Questions or Comments (if there's time)...

Thank You

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Stand B10 at the Mindful Living Show

MBCT Trial References

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- Interesting commentary on Kuyken's and Huijber's trials by James Coyne:
<https://mindthebrain.blog/2016/02/28/study-switching-from-antidepressants-to-mindfulness-meditation-increases-relapse/>
- James Coyne (2016) <http://blogs.plos.org/mindthebrain/2015/05/20/is-mindfulness-based-therapy-ready-for-rollout-to-prevent-relapse-and-recurrence-in-depression>

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