

Mindfulness

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Purpose of today's lecture

- This lecture will provide an overview of the **psychological and health interventions** that use mindfulness techniques and how they are theorised to have a beneficial effect on health

Brief exercise

- Focusing on our breath

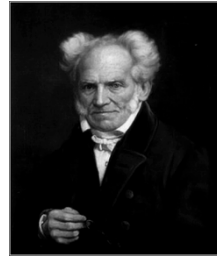


Psychology as a secular discipline

- Psychology has traditionally been a secular discipline.
- Early theorists occasionally made very negative remarks about the role of religion, or largely Christianity.
- Psychology has generally been describing the role and function of religious behaviors, without much direct engagement with the philosophies underlying these religious traditions.
- With the recent rise in popularity of mindfulness-based interventions (in parallel with wider developments, such as the field of positive psychology), the discipline of psychology will from now on be required to investigate in more detail the role of religious practice.

Buddhism and the West

- Evidence of early influence of Buddhism on ancient Greece
- Did not spread systematically to West until 19th Century - e.g., German philosopher Arthur Schopenhauer



(1788-1860)



- Famous novel by Hermann Hesse *Siddhartha* (1922)

(1877-1962)

Surge of interest in Buddhism and Eastern Philosophies

- A “surge of interest” in Buddhism occurred after the Second World War.
- There were many factors that started an interest in Eastern philosophies and religions in 1960s and 1970s (e.g., Beatles George Harrison and John Lennon and Hare Krishna).
- Alan Watts was a particularly prolific writer of Eastern philosophy. Relevant for psychology was his book *Psychotherapy East and West*.

Jack Kerouac (1922-1969)



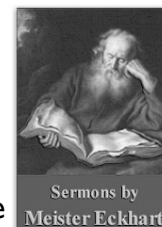
Alan Watts (1915-1973)

Mindfulness in psychological therapy

- The *systematic* use of mindfulness in psychological therapy began in the 1990s. The following widely-used therapy types are all sometimes grouped together as mindfulness-based interventions (MBIs):
- **Dialectical Behavior Therapy (DBT)**
- **Acceptance and Commitment Therapy (ACT)**
- **Mindfulness-Based Stress Reduction (MBSR)**
- **Mindfulness-Based Cognitive Therapy (MBCT)**

Mindfulness prior to MBIs

- Mindfulness is certainly not a new invention of MBIs. All major religions of the world contain traditions and techniques that foster mindfulness (chanting, prayer, etc). However, the term has never been used that way before.
- Every religion has its mystics. However, it is safe to argue that Buddhism places much more explicit emphasis on mindfulness than other religions.
- Recently, new forms of Christian meditation have become popular. But most Westerners make contact with mindfulness training via yoga, a Buddhist group or as part of psychological therapy.
- Psychotherapy has been using related concepts (free association, decentering, deautomization etc.), but these are not directly equivalent to mindfulness.



Sermons by
Meister Eckhart

Meister Eckhart (1260-1327)

Incidental mindfulness

Discussion:

- Can you practise mindfulness without knowing that you are doing it?

Activities inducing a mindful state

- Anything that switches off the default mode network
- Experienced by everyone at some time and may be interpreted as creative, spiritual, existential, inspirational, calm, meaningful
- Mindfulness practice is a deliberate attempt to induce such states regularly and in a variety of situations



Trait/skill definitions of *mindfulness*

- Being a psychological construct, mindfulness needs to be inferred and cannot be measured directly.
- Most definitions include references to attention, awareness and a nonjudgemental attitude.
- Kabat-Zinn (1994) defined it as “paying attention in a particular way: on purpose, in the present moment, and non-judgmentally”.

Other definitions of *mindfulness*

- “[W]e see mindfulness as a **process of regulating attention** in order to bring a quality of **nonelaborative awareness to current experience** and a quality of relating to one’s experience within an **orientation of curiosity, experiential openness, and acceptance**. We further see mindfulness as a process of **gaining insight into the nature of one’s mind and the adoption of a de-centered perspective**...on thoughts and feelings so that they can be experienced in terms of their **subjectivity** (versus their necessary validity) and **transient nature** (versus their permanence)” (Bishop et al., 2004)
- Some researchers argue that *acceptance* is redundant in the definition of mindfulness, as it is implicit in focused attention. When one does not accept things, one re-directs attention to change, avoid or escape the event. So, acceptance is perhaps just a “side-effect” of being present in the moment.

Mindfulness-informed approaches

- Meditation and related exercises are generally considered central to developing mindfulness.
- This is what distinguishes so-called mindfulness-based approaches (where it is central) from mindfulness-informed approaches (where mindfulness may be part of some exercises and there isn't the same disciplined practice)
- An example of the latter is ACT:

Acceptance and Commitment Therapy (ACT)

- Developed by the psychologist Stephen Hayes.
- As the name implies, ACT's goals are about mindful acceptance of unwanted thoughts and feelings as well as commitment to act according to one's values.
- People often place too much emphasis on the literal content of thoughts, which in conditions such as depression is perpetuated in a continuous vicious cycle.
- Clients are taught to stop identifying themselves with the thoughts and instead focus back on the *process* of thinking.
- For example, a person with low self-esteem might verbalize the following thought: "I am worthless". The client learns to reframe this thought into: "I am having the thought that I am worthless".



Mindfulness exercises in ACT

- Clients are instructed to be mindful in the present moment and to practice acceptance and awareness of negative thoughts even though they generally tried to avoid them before.
- Clients also commit to clear goals. After having achieved a habit of acceptance and awareness of one's thoughts, these may now change:
- A person with an anxiety disorder, for example, might learn to accept anxiety and reframe the therapeutic goal from recovery of anxiety to leading a meaningful life. They thus learn to live with anxiety but focus on what is important to their lives.
- While ACT uses stories, conversations, paradoxes and exercises to promote mindfulness in the client, these are not used to solve the behavior problem with logical reasoning but through the *experience* of mindfulness.

Mindfulness-Based Stress Reduction (MBSR)

- Developed by Jon Kabat-Zinn.
- As the name implies, it was designed for stress reduction, but also as a tool to cope with chronic pain.
- Meditation is a central part of a course that is typically 8-10 weeks long. Around 10-30 participants gather for weekly 2- to 2.5-hour sessions, and one full-day workshop.
- Outside the class, participants are requested to meditate daily for 45 min and to complete homework to apply mindfulness into their daily lives.
- One of the major goals of the program is to foster a nonjudgmental attitude. People develop a habit of observing the content of their thoughts without judging them and to return their attention to the present moment.



Mindfulness exercises in MBSR

- Apart from mindfulness meditation, participants practice yoga, breathing exercises, as well as mindful eating, mindful walking, mindful dishwashing...
- The **body scan** exercise gets participants to lie down with their eyes closed. Gradually, they are asked to observe the sensations in the various parts of the body, one at a time.



Brief exercise

- Body scan

Mindfulness-Based Cognitive Therapy (MBCT)

- Developed by the Segal, Williams, and Teasdale.
- This therapy is directly based on the MBSR program, but was designed to be a program to prevent relapse from depression.
- Traditional cognitive therapy treats depression by teaching people to replace negative thoughts (e.g. self-talk such as “I am overweight and ugly”) with rational ones (“I am not more overweight than most people my age”). While this might work, clients are still vulnerable to relapse.
- MBCT teaches clients to stop identifying themselves with thoughts and in this way attempts to prevent depression from re-occurring.
- They learn to notice, without judging, that thoughts come and go.

Effectiveness of MBSR

- The effectiveness of MBSR has been studied much more than other therapies (with depression, chronic pain, coping with cancer, heart disease, and also general population with no specific problems).
- In cancer patients, it leads to better mood, better sleep quality and reduced stress.
- However, meditation is more than simply relaxation.
- In patients with chronic pain, the goal is not to strive to reduce pain, but to observe sensations and emotions as they happen in the moment.
- A famous saying goes: “**Pain is inevitable, suffering is optional**”.



Mindfulness as a “complex” intervention

- Mindfulness interventions have been described as a complex intervention according to the guidelines of the Medical Research Council of the UK
- This is because of the complexity of behaviours required by the course facilitators and participants to engage in, variability of outcomes and the fact that interventions typically permit (even encourage) a degree of flexibility to meet needs of participants



Informal Mindfulness

- Generalising formal mindfulness practices into everyday life
 - Attention on water while taking a shower
 - Mindfully engaging in household tasks
- “Surfing the urge” – increased awareness of physical sensations as urges are noticed and observed; watching them rise and fall
- What about mindful colouring?



Mindfulness diary

- It is very common for mindfulness teachers to encourage using a diary where observations around one's mindfulness are recorded daily
- Additionally, recording length of daily session serves as a reminder for participants to practice (and is already an intervention)
- The narrative part of the diary helps reflect on application of mindfulness in everyday life
- It helps us really how often we are actually absentminded (in psychometrics called response shift)
- It also helps build insight – increased meta-emotional awareness (under which circumstances do you tend to behave in a certain way?)

Concentration versus Insight Meditation

- A common distinction made to describe meditation techniques is in terms of concentration (Samatha) versus insight (Vipassana) meditation
- Concentration meditation teaches focused attention on a single object or event (usually breath); often considered beginner's practice (although opinions vary)
- Open monitoring: expand attentional scope to any experience that may arise, without selecting, over-identifying, judging, or focusing on a particular object

Four Foundations of Mindfulness

- Insight meditation is based on the Satipatthana Sutra or the Four Foundations of Mindfulness
- In stages, you develop mindfulness of the body, feelings or sensations, mind or consciousness, and so-called dhamma (mental objects)
- One thus learns to see the truth of reality or the true nature of phenomena as arising and fading away

Brief exercise

- Vipassana
- [youtube.com/watch?v=WNmxxbqJMxl](https://www.youtube.com/watch?v=WNmxxbqJMxl)

Taxonomy of meditation

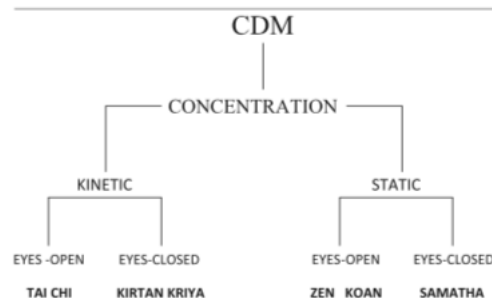
- Nash and Newberg (2013)
 - CDM: Cognitive-directed method
 - ADM: Affective-directed method
 - NDM: Null-directed method

Table 1 | Examples of the sub-classification of the three domains.

CDM	ADM	NDM
Samatha	NRLK (dmig med snying rje)	TM
Vipassana		
Kirtan Kriya	Samatha metta and karuna	So'ham Japa
Tai Chi Chuan		

Taxonomy of meditation

Table 2 | Sub-classification of four different cognitive-directed methods.



Taxonomy of meditation

3. *Vipassana Meditation.* A traditional Buddhist technique; Pali/Sanskrit language commonly translated as insight or mindfulness. Caution must be exercised when attempting to classify this method because there are several different forms and styles in current practice all under the same name of Vipassana. For the purposes of this paper we will consider the Goenka method (Goenka, 1987) since many research studies use subjects who employ this technique.

- (1) Utilizes mindfulness, detached observation, contemplation, and insight.
- (2) The physical foci of attention is on the body using a "body-scan" technique with a prescribed narrative.
- (3) Knowledge and belief in the teachings of Buddhism is essential in order to relate the experiences of the meditation to an insight/wisdom into your own nature and to develop an experiential understanding of the "Three Universal Characteristics" (see The Discourse Summaries, Goenka, 1987).
- (4) Eyes are closed.
- (5) Static.
- (6) Non-verbal.
- (7) Upright seated position on the floor, lotus posture if possible.
- (8) Intrinsic.
- (9) Normal breathing, no special breathing instructions or requirements.

Taxonomy of meditation

5. *Samatha Meditation.* An ancient contemplative practice believed to have originated in India, traditionally associated with Buddhism, of Pali/Sanskrit language translated as "calm" or "quiescence" but usually considered to mean concentration. There are several forms of samatha meditation and many different objects of focus (forty are listed in traditional Buddhist texts), but all are intended to calm and focus the mind. Here we will consider only two of them.

• Concentration on the breath.

- (1) Utilizes concentration and visualization as the main cognitive strategies.
- (2) The physical focus of attention is on the breath and the parts of the body associated with breathing, especially the nose.
- (3) Knowledge and belief in the teachings of Buddhism is recommended but not essential.
- (4) Eyes closed.
- (5) Static.
- (6) Non-verbal.
- (7) Seated with straight spine.
- (8) Intrinsic.
- (9) There are specific breathing instructions.

Taxonomy of meditation

4. Tibetan Non-Referential Unconditional Loving-Kindness technique (NRLK)(dmigs med snying rje). Of traditional Tibetan Buddhist origin.

- (1) Utilizes concentration, contemplation, and visualization.
- (2) The conceptual foci of attention is on a prescribed narrative and the emotions that are generated.
- (3) Understanding and belief in the teachings of Buddhism is suggested but not required, belief in the value of extending loving-kindness to all sentient beings is required.
- (4) Eyes-open.
- (5) Static.
- (6) Non-verbal.
- (7) Upright seated position, lotus posture if possible.
- (8) Intrinsic.
- (9) Normal breathing, no special breathing instructions, or requirements.

Measuring *mindfulness*

- Being a psychological construct, mindfulness needs to be inferred and cannot be measured directly.
- Reviews of recent mindfulness questionnaire show a wide range of different question content.
- Only a small number of questionnaires are about mindfulness *states* (in other words, how mindful one feels at the present moment).
- Most questionnaires provide *trait* measures. This does not imply that one's degree of mindfulness cannot change, but it is assumed to occur *gradually* with increased practice.
- People with no experience in mindfulness training vary substantially in terms of their mindfulness score.



MAAS

- The Mindfulness Attention and Awareness Scale (MAAS) has 15 statements, and the respondent ticks the appropriate answer on a Likert scale (1= “strongly disagree, 2= “disagree” ,...).
- All answers are converted into one single score.
- Example question:
- “I find myself doing things without paying attention”

FMI

- The Freiburg Mindfulness Inventory (FMI) has 30 statements, and the respondent ticks the appropriate answer on a Likert scale (1= “strongly disagree, 2= “disagree” , ...).
- All answers are converted into one single score.
- Example question:
- “I am open to the experience of the present moment”

FFMQ

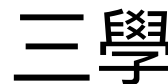
- The Five Facet Mindfulness Questionnaire (FFMQ) has 37 statements with a Likert scale.
- Scores are calculated for five different subscales:
- **Observing:** “I notice the smells and aromas of things”
- **Describing:** “I’m good at finding the words to describe my feelings”
- **Acting with awareness:** “I break or spill things because of carelessness, not paying attention, or thinking of something else”
- **Nonjudging:** “I tend to evaluate whether my perceptions are right or wrong”
- **Nonreacting:** “I perceive my feelings and emotions without having to react to them”

Giving questionnaires to monks

- Christopher et al. (2009) gave the MAAS and KIMS to Theravada monks and American university students.
- The monks had higher scores on awareness, but lower scores on observing and accepting without judgment. The problem is that this kind of exercise is littered with biases related to language (e.g. translations, different connotations) and culture.
- Feng et al. (2018) conducted a cognitive interviewing study with more questionnaires and senior Buddhist from a variety of traditions. They concluded that mindfulness in Buddhism differs in terms of characteristics they described as purposeful, skillful, ethical, and profound.

- Western approaches often define *mindfulness* by referring to *nonjudgmental* awareness.
- In Buddhism, *mindfulness* is dynamically integrated into the noble eightfold path, which includes ethical conduct. This implies an evaluative process of judging between *wholesome* and *unwholesome* practice. Buddhism is about more than *acceptance*, but about active thought *transformation*.
- Buddhism's goal is *wise mindfulness*, and that is where the practices of *wisdom* and *ethics* interact with *concentration*. Mindfulness as memory is reminding oneself of the principles of cause and effect and impermanence. And of one's practice.
- So, can Western programmes in theory train mindful drug dealers?

- Mindfulness in Buddhism is discussed in the context of the **eightfold path**, and here it is only one element:
 - right/correct/complete/wholesome **view** (wisdom/*prajñā*)
 - right **intention** (wisdom/*śīla*)
 - right **speech** (ethics/*śīla*)
 - right **action** (ethics/*śīla*)
 - right **livelihood** (ethics/*śīla*)
 - right **effort** (concentration/*samādhi*)
 - right **mindfulness** (*sammāsati*) (concentration/*samādhi*)
 - right **concentration** (concentration/*samādhi*)





The role of morality in MBIs

- There is no prescribed way of morality in MBIs (to avoid clashing with other belief systems), but this does not mean that it plays no role.
- Everybody entering such a program will have been exposed to morality through socialisation and even education and bring with them their own guidelines.
- There are reports that people develop more compassion naturally, even when loving-kindness meditation is not explicitly instructed (Maex, 2011).
- Cullen (2011) argues that the intention to cause harm and mindfulness are mutually exclusive states.

Brief exercise

- Loving-kindness meditation
- [youtube.com/watch?v=sz7cpV7ERsM](https://www.youtube.com/watch?v=sz7cpV7ERsM)

Compassion and Self-compassion

- So-called self-compassion intervention have become very popular recently
- Self-compassion scores are often highly correlated with mindfulness (although might also be due to the fact that development of these scales used mindfulness as discriminant validity criterion)
- Useful for people who tend to exhibit a lot of guilt and shame
- Cebolla et al. (2017) included compassion meditation in their typology, which was associated with unique aspects in the FFMQ

Neurophysiology of Mindfulness: EEG

- Davidson et al. (2003) compared **cortical activity** of 25 participants after 8 weeks MBSR to 16 wait-list controls.
- Significantly **higher left-side anterior activation** (C3/4) - linked to **positive affective style** was reported for mindfulness group compared to controls.
- This study also gave participants an **influenza vaccine** to test their immune system.
- Significant **rise of antibody cells** associated with mindfulness compared to control group.
- Also, **decrease** of negative affect & **anxiety** were reported.

Mindfulness: Neuroimaging

- **Functional magnetic resonance imaging** or functional MRI (**fMRI**) measures brain activity by detecting changes associated with blood flow. Relies on the fact that cerebral blood flow and neuronal activation are coupled.
- **Volume of Grey matter** (darker tissue of the brain) correlates **negatively** with **attention task performance & age in normal, non-meditative population** but
- not in experienced **Zen practitioners**.
 - Older we are the less grey matter we have and the poorer our ability for attention task performance
- These findings suggest that Zen **meditation** practice may **prevent age-related cognitive deterioration** by inhibiting **reduction of grey matter volume** (Pagnoni & Cekic, 2007)
- Recent study reported **increased grey matter density** in the brain regions involved in **emotion** regulation, **learning**, **memory** and self-related cognitions after **MBSR** training. (Hölzel et al., 2011)

Effects of Mindfulness

- Massion et al. (1995) found that experienced meditators had significantly higher **melatonin** levels.
- Since higher melatonin levels are linked to **improved immune function**, they speculated that regular meditation might lead to improved outcomes for breast and prostate **cancer**.

Neurophysiology of Mindfulness: Conclusions

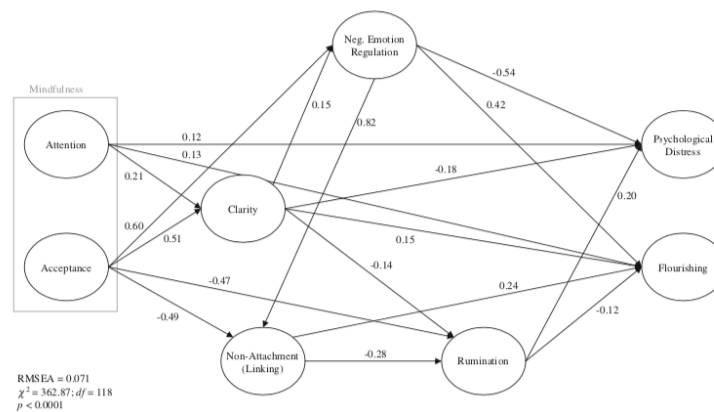
- “Mindfulness is proposed to be a unique form of higher-order information processing in which subjective assessment of transient events is silenced in favour of maintaining objectivity and gaining insight” (Ives-Deliperi et al., 2011, p. 240).
- Mindfulness may promote psychological health through disintegration of both self-concept and permanent sense of self (Martin, 1997).
- Mindfulness may enhance unfocused and sustained attention capacity, memory and executive function.
- Limitations: methodology and lack of research on pure mindfulness.

Research using self-report

- Most research relies on self-report measures such as questionnaires.
- The results from these studies can then be analysed statistically to test various hypotheses about the mechanisms by which mindfulness is assumed to exert its health benefits.
- Techniques used here are structural equation modelling

Mechanisms of action

□ Coffee et al. (2010) 10.1007/s12671-010-0033-2



Mechanisms of action

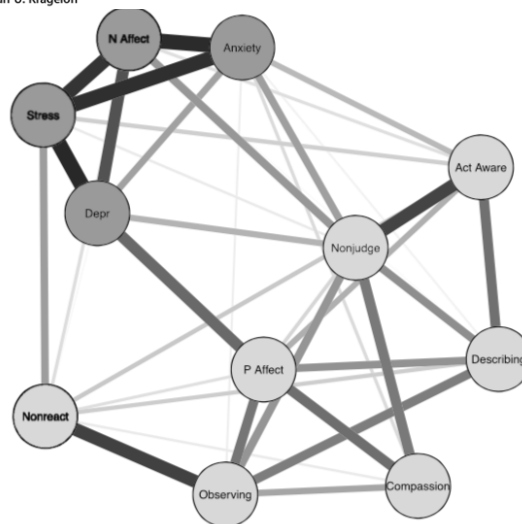
□ Pearson et al. (2015) 10.1007/s12671-014-0300-8



Network Analysis of Mindfulness Facets, Affect, Compassion, and Distress

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Fig. 1 The network structure of the full set of protective and maladaptive nodes. Nodes (variables) are depicted as circles and unique associations between nodes as lines. Blue lines indicate positive associations. Red lines indicate negative associations. The groups of nodes are indicated using different colors



Conclusions

- Western mindfulness-based interventions have received much attention in recent years, but research has now entered a phase where the **effectiveness of mindfulness no longer needs to be demonstrated**, rather the **mechanism** by which this happens does (Williams & Kabat-Zinn, 2011).
- More detailed mechanisms are to be tested empirically.
- A challenge also continues to be agreeing on a suitable definition of mindfulness

Some recommended readings:

- Feng, X. J., Krägeloh, C. U., Billington, D. R., & Siegert, R. J. (2018). To what extent is mindfulness as presented in commonly used mindfulness questionnaires different from how it is conceptualized by senior ordained Buddhists?. *Mindfulness*, 9(2), 441-460. doi:10.1007/s12671-017-0788-9
- Krägeloh, C. U., Henning, M. A., Medvedev, O. N., Feng, X. J., Moir, F., Billington, R., & Siegert, R. J. (2019). *Mindfulness-based intervention research: characteristics, approaches, and developments*. Oxon, United Kingdom: Routledge.
- Nash, J. D., & Newberg, A. (2013). Toward a unifying taxonomy and definition for meditation. *Frontiers in Psychology*, 4:Article 806. doi:10.3389/fpsyg.2013.00806

