

Supplementary data

Annex A - Loving Kindness Meditation

Loving-kindness meditation or Metta is a traditional Buddhist practice for developing compassion. Sitting in a comfortable, upright posture, follow these steps.

1. Spend a few minutes of mindfulness meditation, focussing on the breath.
2. Recall that all living beings want to be happy and free from suffering.
3. Focusing on yourself, awaken a feeling of goodwill and tenderness and wish yourself

May I be well
May I be happy
May I find peace

Repeat these phases silently to yourself for a few minutes.

4. Bring a loved-one to mind, this could a family member, a friend or even a pet. With the same feeling of goodwill and tenderness, wish them

May (name) be well
May (name) be happy
May (name) find peace

Repeat these phases silently to yourself for a few minutes.

5. Bring a neutral person to mind, this could a neighbour, someone you see in a shop or colleague with whom you have little interaction. With the same feeling of goodwill and tenderness, wish them

May (name) be well
May (name) be happy
May (name) find peace

Repeat these phases silently to yourself for a few minutes.

6. Bring a difficult or offensive person to mind, this could be a loved-one with whom you have a dispute, or a difficult colleague. With the same feeling of goodwill and tenderness, wish them

May (name) be well
May (name) be happy
May (name) find peace

Repeat these phases silently to yourself for a few minutes.

7. Let your loving-kindness grow by imagining these three people in front of you and wish them

May (names) be well
May (names) be happy
May (names) find peace

Repeat these phases silently to yourself for a few minutes.

8. Extend your loving-kindness even further by wishing all sentient being well. You can start with people you know and widen the circle more and more.

May all beings be well
May all beings be happy
May all beings find peace

Repeat these phases silently to yourself for a few minutes.

9. Rest in the feeling of loving-kindness and then bring your attention back to the breath.

References

Adams, R. (2012) 'Clinical Empathy: A discussion on its benefits for practitioners, students of medicine and patients', *Journal of Herbal Medicine*, 2, pp 52 – 57.

Batson, C.D. and Shaw, L. L. (1991) 'Evidence for altruism: Toward a pluralism of prosocial motives' *Psychological Inquiry*, 2, pp. 107–122.

Bouma, H. K., (2008) 'Is Empathy Necessary for the Practice of "Good" Medicine', *The Open Ethics Journal*, 2, pp. 1 – 12.

Brown, S. L., Brown, R. M., House, J. S. and Smith, D. M. (2008) 'Coping with spousal loss: potential buffering effects of self-reported helping behavior', *Personality and Social Psychology Bulletin*, 34 (6), pp. 849 – 861.

Butler, E. A., Egloff, B., Wilhelm, F. H., Smith, N. C., Erickson, E. A. and Gross, J. J. (2003) 'The social consequences of expressive suppression', *Emotion*, 3 (1), pp. 48 – 67.

Carson, J. W., Keefe, F. J., Lynch, T. R., Carson, K. M., Goli, V., Fras, A. M. and Thorp, S. R. (2005) 'Loving-kindness meditation for chronic low back pain: results from a pilot trial' *Journal of Holistic Nursing*, 23 (3), pp. 287 – 304.

CCARE (2014) 'The Compassion Database' Available at: <http://ccare.stanford.edu/research/compassion-database/> (Accessed 17/02/14)

Cosley, B.J., McCoy, S.K., Saslow, L. R. and Epel, E.S. (2010) 'Is Compassion for Others Stress Buffering? Consequences of Compassion and Social Support for Physiological Reactivity to Stress', *Journal of Experimental Social Psychology*, 46 (5), pp. 816 – 823.

Craig, K. D., Versloot, J., Goubert, L., Vervoort, T. and Crombez, G. (2009) 'Perceiving Pain in Others: Automatic and Controlled Mechanisms', *The Journal of Pain*. Available at https://www.academia.edu/1392779/Perceiving_pain_in_others_automatic_and_controlled_mechanisms (Accessed: 17th February 2015)

Decety, J., Michalska, K. J. and Akitsuki, Y. (2008) 'Who caused the pain? An fMRI investigation of empathy and intentionality in children', *Neuropsychologia*, 46 (11), pp. 2607 – 2614.

Decety, J., Yang, C. Y. and Cheng, Y. (2010) 'Physicians down-regulate their pain empathy response: an event-related brain potential study', *Neuroimage*, 50 (4), pp. 1676 – 1682.

Decety, J., Smith, K. E., Norman, G. J. and Halpern, J. (2014) 'A social neuroscience perspective on clinical empathy', *World Psychiatry*, 13 (3), pp. 233 – 237.

Desbordes, G., Negi, L. T., Pace, T. W. W., Wallace, B. A., Raison, C. L. and Schwartz, E. L. (2012) 'Effects of mindful-attention and compassion meditation training on amygdala response to emotional stimuli in an ordinary, non-meditative state', *Frontiers in Human Neuroscience*, 6 (292).

Eisenberg, N., Fabes, R. A., Schaller, M., Miller, P., Carlo, G., Poulin, R., Shea, C. and Shell, R. (1991) 'Personality and socialization correlates of vicarious emotional responding', *The Journal of Personality and Social Psychology*, 61 (3), pp. 459 – 470.

Figley, C.R. (2002). *Treating compassion fatigue*. New York, NY: Brunner-Routledge.

Goetz, J. L., Keltner, D. and Simon-Thomas, E. (2010) 'Compassion: An Evolutionary Analysis and Empirical Review' *Psychological Bulletin*, 136 (3), pp. 351 - 374

Goleman, D. (2008) *Hot to help* Available

at: http://greatergood.berkeley.edu/article/item/hot_to_help (Accessed: 19th February 2015)

Greater Good Science Centre (2014) *Empathy* Available

at: <http://greatergood.berkeley.edu/topic/empathy/definition> (Accessed: 19th February 2015)

Gross, J. J. and Levenson, R. W. (1997) 'Hiding Feelings: The acute effects of inhibiting negative and positive emotion', *Journal of Abnormal Psychology*, 106, pp. 95 – 103.

Halpern, J. (2003) 'What is Clinical Empathy?', *Journal of General Internal Medicine*, 18(8), pp. 670 – 674.

Hofmann, S. G., Grossman, P. and Hinton, D. E. (2011) 'Loving-kindness and compassion meditation: potential for psychological interventions', *Clinical Psychology Review*, 31 (7), pp. 1126 – 1132.

Hojat, M., Gonnella, J., Nasca, T., Mangione, S., Vergare, M. and Magee, M. (2002) 'Physician empathy: definition, components, measurement and relationship to gender and speciality' *American Journal of Psychiatry*, 15, pp 1563 – 1569.

Hojat, M., Vergare, M. J., Maxwell, K., Brainard, G., Herrine, S. K., Isenberg, G. A., Veloski, J., and Gonnella, J. S. (2009) 'The Devil is in the Third Year: A Longitudinal Study of Erosion of Empathy in Medical School', *Academic Medicine*, 84 (9).

Hutcherson, C. A., Seppala, E. M. and Gross, J. J. (2008) 'Loving-kindness meditation increases social connectedness', *Emotion*, 8 (5), pp. 720 – 724.

Jani, B. D., Blane, D. N. and Mercer, S. W. (2012) 'The Role of Empathy in Therapy and the Physician-Patient Relationship', *Forschende Komplementärmedizin*, 19, pp. 252–257.

Keltner, D and Simon-Thomas, E (2014) 'The Science of Happiness' Available at: <https://www.edx.org/course/science-happiness-uc-berkeleyx-gg101x> (Accessed: 17/12/13)

Klimecki, O. M., Leiberg, S., Ricard, M. and Singer, T. (2014) 'Differential Pattern of Functional Brain Plasticity after Compassion and Empathy Training', *Social Cognitive and Affective Neuroscience*, 9 (6), pp. 873 – 879.

Levenson, R. W. (1994) 'Emotional control: Variation and consequences', in Ekman, P. and Davidson, R. J. (Eds.) *The nature of emotion: Fundamental questions*. New York: Oxford University Press, pp. 273 – 279.

Maslach C. (1982) *Burn-out – The Cost of Caring*. Englewood, Cliffs, NJ: Prentice Hall.

Pace, T. W., Negi, L. T., Sivilli, T. I., Issa, M. J., Cole, S. P., Adame, D. D. and Raison, C. L. (2010) 'Innate immune, neuroendocrine and behavioral responses to psychosocial stress do not predict subsequent compassion meditation practice time', *Psychoneuroendocrinology*, 35 (2), pp. 310 – 315.

Potter, P., Deshields, T., Divanbeigi, J., Berger, J., Cipriano, D., Norris, L. and Olsen, S. (2010) 'Compassion Fatigue and Burnout: Prevalence Among Oncology Nurses', *Clinical Journal of Oncology Nursing*, 14(5), pp. 56 - 62.

Poulin, M. J., Brown, S. L., Dillard, A. J. and Smith, D. M. (2013) 'Giving to others and the association between stress and mortality' *American Journal of Public Health*, 103, pp. 1649–1655.

Roter, D. L., Hall, J. A., Merisca, R., Nordstrom, B., Cretin, D. and Svarstad, B. (1998) 'Effectiveness of interventions to improve patient compliance: a meta-analysis', *Medical Care*, 36 (8), pp. 1138 – 1161.

Sarinopoulos, I., Hesson, A. M., Gordon, C., Lee, S. A., Wang, L., Dwamena, F. and Smith, R. C. (2013) 'Patient-centered interviewing is associated with decreased responses to painful stimuli: an initial fMRI study', *Patient Education Counselling*, 90 (2), pp. 220 – 225.

Seppala, E., Rossomando, T. and Doty, J. R. (2013) 'Social Connection and Compassion: Important Predictors of Health and Well-Being', *Social Research*, 80(2), pp 411 – 430. Available at: <http://ccare.stanford.edu/article/social-connection-and-compassion-important-predictors-of-health-and-well-being/> (Accessed: 28/01/15)

Seppala, E.M., Hutcherson, C. A., Nguyen, D. T., Doty, R. R. and Gross, J. J. (2014) 'Loving-kindness meditation: a tool to improve healthcare provider compassion, resilience, and patient care', *Journal of Compassionate Health Care*, 1 (5).

Stewart, M. A., (1995) 'Effective physician-patient communication and health outcomes: a review', *Canadian Medical Association Journal*, 152 (9)

Acknowledgements

The authors would like to thank Richard Adams for his valuable help and guidance in completing this paper.