

## **Emotional factors in placebo analgesia: Psychophysiological experiments**

### **Results:**

Placebo analgesia is the reduction in pain after administration of an inert substance together with information that the substance is a painkiller.

EXP 1: Do positive expectations of drug treatment lead to decreased stress that mediate placebo analgesia? Stress was not affected. Placebo analgesia was seen in males only. All the experimenters were female nurses. Exp. 2 investigated whether the presence of a male or female experimenter modulated pain report in males and females.

EXP 2: Males who reported pain to females reported lower pain compared to males reporting to males. Females reported similar pain to both male and females. To investigate whether males who report lower pain to females feel less pain, or just report lower pain, Exp. 3 investigated the physiological response to pain in males and females tested by males and females.

EXP 3: Measures of heart rate variability (HRV), indicating autonomic response, were included. HRV to pain stimuli was similar in males reporting to females and males reporting to males, indicating that the response to pain was the same in both females and males. Thus, social context modulated pain report but not pain sensation.

EXP 4: Nocebo hyperalgesia is increased pain after administration of treatment signalling increased pain. A conditioned stimulus (CS) signalled the onset of pain. The CS increased pain report compared to control. The CS also increased stress and sympathetic response.

### **CONCLUSION**

Placebo analgesia is not related to decreased stress. Nocebo hyperalgesia is related to increased stress. Social context influences pain report. The effect of social context must be taken into consideration in all studies where pain is subjectively recorded.

### **Published work:**

Flaten, M.A., Aslaksen, P.M., Simonsen, T., Finset, A., & Johansen, O. Cognitive and emotional factors in placebo analgesia. *Journal of Psychosomatic Research*, 2006, 61, 81-89.

Friborg, O., Hjemdal, O., Rosenvinge, J.H., Martinussen, M., Aslaksen, P.M., & Flaten M.A. Resilience as a modulator of pain and stress. *Journal of Psychosomatic Research*, 2006, 61, 213-219.

Aslaksen, P.M., Myrbakk, I.N., Høifødt, R.S., & Flaten, M.A. (2007). The effect of experimenter gender on autonomic and subjective responses to pain stimuli. *Pain*, 129, 260-268

### **Planned publications**

Aslaksen, P.M., Flaten, M.A. Interaction of experimenter gender and participant gender in pain report. *European Journal of Pain*.

Aslaksen, P.M., Flaten, M.A. Classical conditioning of pain. Subjective and psychophysiological responses. Will be submitted to *Pain*.

Johansen, O., Flaten, M.A. The role of symptom-related information on treatment of fibromyalgia and low-back pain. Will be submitted to the *European Journal of Pain*.

### **Conference presentations**

Friborg, O., Hjemdal, O., Martinussen, M., Rosenvinge, J., Flaten, M.A., & Aslaksen, P.M. (2004). Social competence: Maybe the best predictor of resilience? 28<sup>th</sup> International Congress in Psychology Conference, Beijing, 12-15/6.

Finset, A., Aslaksen, P.M., Simonsen, T., Johansen, O., & Flaten, M.A. (2005). The effect of stress and information on pain and placebo analgesia. Meeting of the American Psychosomatic Society, Vancouver, Canada, 25-28/3.

Finset, A., Aslaksen, P.M., Simonsen, T., Johansen, O., & Flaten, M.A. (2005). Effects of drug-related information and support on placebo analgesia. International College of Psychosomatic Medicine meeting, Kobe, Japan, 21-26/8.

Flaten, M.A., Aslaksen, P.M., Simonsen, T., Finset, A., & Johansen, O. (2005). Cognitive and emotional factors in placebo analgesia. Meeting of the Society for Psychophysiological Research, Lisboa, Portugal, 22-25/9.

Aslaksen, P.M., Simonsen, T., Finset, A., Johansen, O., & Flaten, M.A. (2005). Information about drug and information about pain both reduce perceived pain. Society for Neuroscience meeting, Washington, D.C., 12-16/11.

Flaten, M.A., Aslaksen, P.M., Simonsen, T., Finset, A., & Johansen, O. (2005). Emotional processes are not involved in placebo analgesia. Society for Neuroscience meeting, Washington, D.C., 12-16/11.

Aslaksen, M.A., Flaten, M.A. (2006). Classical conditioning modulates pain. Society for Neuroscience meeting, Atlanta, GA, 14-18/10.

Aslaksen, M.A., Flaten, M.A. (2006). The role of classical conditioning in modulation of pain report by social factors. Society for Psychophysiological Research meeting, Vancouver, Canada, 24-28/10.

Aslaksen, M.A., Flaten, M.A. (2006). The role of classical conditioning in pain. Health Research Conference for North Norway, Tromsø, Norway, 1-2/11.

Aslaksen, M.A., Flaten, M.A. (2007). The role of stress in placebo analgesia. Meeting of the American Psychosomatic Society, Budapest, Hungary, 7-10/3.

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