

Identification of psychological traits that are critically involved in the occurrence of experimentally induced suffering

Smadar Bustan^{1*}, Ana María González-Roldán¹, Angela Otero¹, Sandra Kamping², Michael Brunner², Martin Löffler², Herta Flor², Fernand Anton¹.

¹FLSHASE/INSIDE, Psychobiology and Neurophysiology Group, University of Luxembourg

²Department of Cognitive and Clinical Neuroscience Central Institute of Mental Health, Medical Faculty Mannheim, University of Heidelberg, Mannheim, Germany

Aim of Investigation

In the companion abstract (Introducing the dimension of suffering to mechanically induced phasic and tonic pain) we have introduced the concept of pain-related suffering as a dimension to be considered additionally to the commonly assessed parameters intensity (sensory) and unpleasantness (affective) (Clark et al., 1986). The goal of the present study was to further validate this new dimension by identifying psychological traits that are distinctly involved in the processing of suffering and to determine the components of the suffering experience.

Methods

As described in the companion abstract, subjects were stimulated either with tonic or phasic noxious mechanical stimuli and with or without acoustic startle reflexes in four different sessions. One week before the first experiment, participants completed the State-Trait Anxiety Inventory (STAI), the Fear of Pain Questionnaire (FPQ), the Pain-Related Self-statements Scale (PRSS), the Pain-Related Control Scale (PRCS), the Self Conscious Scale (SCR) and the Body-Consciousness Scale: Private & Public (BCQ) in order to characterize relationships between psychological variables, such as mood state and cognitions and the perception of pain intensity, unpleasantness and suffering. Additionally at the same day of the experiment participants were asked to rate the valence, arousal, and dominance using a Self-Assessment Manikin (SAM), to complete the Positive and negative affect questionnaire (PANAS), and to answer by liker scale to the questions “How worried are you that something serious might happen?” and “How afraid are you of the following pain induction?”. Finally, at the end of each session, subjects responded to a structured interview regarding their pain and suffering subjective experience during the experiment. Correlational analyses between the recorded psychological parameters and the values of the three pain-related scales were performed. Interviews were analysed by Content Analysis.

Results

For the tonic method, Pearson correlations between the ratings and the questionnaire data showed a significant positive correlation between suffering ratings and the scores in the PRSS-catastrophism subscale ($r=0.424$, $p<0.05$). Negative significant correlations were observed between suffering scores and coping skills (PRSS subscale $r= -0.546$, $p<0.01$) as well as the positive affect assessed at the beginning of the experiment ($r=-0.437$, $p<0.05$). In the phasic method, significant positive correlations were observed between suffering scores and the degree of fear ($r= 0.458$, $p<0.05$) as well as with the negative affect assessed at the beginning of the experiment ($r= 0.563$, $p<0.005$). Moreover, both pain intensity and unpleasantness ratings were positively correlated with the score in the FPQ-Severe pain subscale (respectively: $r= 0.422$, $p<0.05$; $r= 0.573$, $p<0.005$). Unpleasantness was also correlated with the negative affect displayed by the subjects ($r= 0.453$, $p<0.05$). The analysis of the interviews identified 4 different suffering dimensions: physical suffering, emotional suffering, mental-cognitive suffering and existential.

Conclusion

These findings show that pain intensity, unpleasantness and suffering are assessing three different aspects of the pain experience. In addition, our results show that the suffering felt by the subject is mainly depending on pain coping skills, extent of catastrophizing and state of positive affect. The interviews show that all 4 suffering dimensions appear in the laboratory set up, in agreement with the author's philosophical concepts. These results could have major implications in the understanding of chronic pain related suffering and be relevant for the development of novel integrative diagnostic and treatment strategies.

Supported by the Fond National de la Recherche Luxembourg (INETR grant) and the Deutsche Forschungsgemeinschaft (grant no. FL 156/34-1 to HF).

* Author's email address: smadar.bustan@uni.lu