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Functional Somatic Symptoms in Children and Adolescents: The Stress-System Approach to Assessment and Treatment

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Online Supplement 12.1

The Brain Stress Systems: The Mind Level of Brain Operations

In this supplement to Chapter 12, we provide the reader with additional material and references pertaining to consciousness, references pertaining to various sections within the chapter, and a brief discussion and two vignettes pertaining to meaning making.

Additional Material and References Pertaining to Consciousness

Readers interested in consciousness from a neuroscience perspective may be interested in the work of two eminent neuroscientists, Antonio Damasio (2003, 2010) and Christof Koch (2012, 2018), who examine the neuronal correlates of consciousness.

Damasio (2010) has suggested that the making of mind involves ensembles of neurons that build maps and that relate to one another in coherent ensembles. Along similar lines, Koch (2012, p. 54) has suggested that consciousness is an emergent property arising from ‘highly networked neurons within and across regions’.

It is exceedingly difficult to find the language for describing such complex ideas. Different writers refer to the cognitive ability to manipulate and integrate information from multiple representations into representations that can be communicated to others through art or through language – images, words, symbols – in different ways. One can refer to these higher-order representations as *meta-representations of representations* or as *representations across multiple levels*. Alternatively, Damasio (2003, p. 215) refers to these higher-order representations as *ideas of ideas*.

Damasio (2003, p. 110) also discusses the relationship between consciousness and feelings, and Koch (2012, p. 55) discusses the relationship between selective attention and consciousness.

For other points of view, see Van Gulick (2018) on consciousness in the *Stanford Encyclopedia of Philosophy*.

References Pertaining to the Section About Catastrophizing

While catastrophizing about pain has received most attention in the literature – showing a clear impact of catastrophizing on the severity of symptoms and illness (Leung 2012; Martin et al. 1996) – catastrophizing is common across functional somatic presentations (Williams et al. 2011; Vervoort et al. 2006; van Tilburg et al. 2015; Lukkanahatai and Saligan 2013). Imaging studies of catastrophizing suggest that it contributes to symptom persistence and amplification because it activates the brain stress systems and increases connectivity between brain stress systems and regions that process pain or other sensory information (Lazaridou et al. 2017; Lee et al. 2018; Kim et al. 2019), which is a pattern that occurs across functional presentations (see Chapter 11).

Catastrophizing by parents is also important (Frerker et al. 2016).

References Pertaining to the Section About Negative Feelings, Anxiety, and Depression

Readers interested in the role of negative feelings, anxiety, and depression on functional somatic symptoms may want to look up the following: Campo's review (2012) showing the strong association between functional somatic symptoms and anxiety and depression in children; Tomenson and colleagues' study (2012) looking at the relationship between high health anxiety and service use; Crombez and colleagues' study (1999) showing that pain-related fear is a better predictor of disability than pain intensity; and Lumley and colleagues' review (2011) of pain and emotion.

References Pertaining to the Section About Putting Unwanted Material Out of Mind

A robust body of work now shows that putting unwanted negative thoughts, feelings, and memories out of mind is associated with increased physiological arousal (Pennebaker and Susman 1988) and with increased activation of the brain stress systems (Goldin et al. 2008; Ohira et al. 2006). And when the unwanted material does come to mind, it can also be associated with very significant arousal (Kanaan et al. 2007). Further, a number of studies highlight that the cognitive process of putting unwanted negative material out of mind can contribute to functional somatic symptoms (Rimes et al. 2016; Testa et al. 2012; Uliaszek et al. 2012).

The Narrative: Making Meaning of Experience

The idea of making unconscious material conscious was the cornerstone of the Freud's psychoanalytic theory (1933). Likewise, meaning making is an important element of positive psychology (Baumeister and Vohs 2002). Meaning making is also played out in the conversations between the patient and the doctor; see 'The Patient's Reaction to Illness' in Eric Cassell's *The Nature of Healing* (2013).

Like other cognitive processes, *meaning making* can be an important part of the healing process, or it can, alternatively, be maladaptive and associated with poor health outcomes. In our own clinical work, meaning making is an important part of the formulation process (see the vignette of Karin, below, and the discussion pertaining to co-constructed formulations in Chapter 3).

We note, however, that in a review of research about meaning making, Bonanno (2013) highlighted that the large majority of people exposed to adverse events cope remarkably well and do not appear to engage in extensive meaning-making efforts. See also other articles in the Special Issue in the journal *Memory* entitled *The Costs and Benefits of Finding Meaning in the Past* (2013). Likewise, for therapists who work from a bottom-up somatic approach (see Chapter 14), meaning making is not a key component in their work with patients.

According to the available literature, for the subgroup of those individuals who do engage in a search for meaning, the meaning-making process may be linked to either positive or negative adjustments and health outcomes. Meaning making may be particularly problematic for individuals with a history of maltreatment, where finding constructive meaning in past events may not be possible. In this context, some researchers have suggested that ‘for individuals who have experienced challenging lives [and who face ongoing challenge], it might be healthier not to reason about past events’ (Sales et al, p. 105) and ‘it may be more adaptive to simply move forward and assume one can change the future rather than to try to make sense of a past that may simply be senseless’ (p. 106). Others have suggested that it can sometimes be more productive to focus on meaningful behaviours – rather than meaning making per se (Hobfoll et al. 2007). Meaning making may also not be helpful for individuals who do not have the cognitive capacity to hold the meaning-making information in their minds across time (see, e.g., the case of Peter, below).

In the two following vignettes, that of Karin provides an example in which meaning making was helpful for the child, and that of Peter provides an example in which meaning making for helpful for Peter’s parents but not

for Peter himself. Peter did not have sufficient cognitive capacity for meaning making to be helpful.

Karin was a 15-year-old girl with a three-year history of pain ranging over her entire body. Six months before admission to the hospital, she had developed weakness in her legs and was eventually confined to a wheelchair. Karin had been skating since she was four. Despite the recent pain, she had kept on skating several hours a day, five to six days a week. The weakness in her legs, however, made it impossible for her to continue skating. As the team spoke with Karin and her family, we learned that her father had died when she was 11. Karin had always been ‘daddy’s little girl’, and she still grieved for him. Karin’s father had been a professional skater in his adolescence and young adulthood. He had also been her skating coach. Karin remembered that they had shared the dream of her also becoming a professional skater. In conversations with the team, Karin said that shortly after her father’s death four years ago, she decided to fulfil their dream. Determined to become a world champion, and she began to push herself very hard. But Karin had not performed as well as she hoped, and she then pushed herself even harder. Further discussion with Karin’s mother revealed that Karin was a good skater but that her dream of being a world champion was way beyond her talent. The mother also said that Karin’s father never would have wished Karin to push herself beyond her limits. His greatest wish had always been that his daughter should live a good life surrounded by people she loved. Talking about this ‘message’ in the therapy room helped to release Karin’s grief for her father’s death. She also realized that her body was communicating a message via the pain and leg weakness. Instead of trying to accomplish the impossible, the best gifts that she could give to her father – and to herself – were to take good care of herself and to explore her other interests and talents.

Peter was a 14-year-old boy with mild intellectual disability. He presented with multiple functional somatic symptoms – recurrent headache, abdominal cramping, blurred vision, and periods of leg weakness with an ataxic gait – following a history of physical assault and bullying, conflicts

with teachers, and academic underachievement. Through the family therapy process, the parents came to accept that Peter was, indeed, intellectually challenged and that most of his problems were the product of their own efforts to avoid the stigma of a special-needs school and to keep Peter on track for what they considered a normal life. This process of meaning making substantially changed how the parents viewed Peter and how they went about supporting him.

But it was different for Peter. Although Peter liked to talk about his past experiences – and in particular, the past bullying at his school – the process of talking perpetuated his anxiety, fear, and hyper-arousal. In other words, the conversation about these events had the potential, on its own, to induce a recurrence of his symptoms. In addition, his intellectual disability made it difficult for him to synthesize or retain information. His conversations were like a stuck record — in which Peter repeated the same thing over and over, and made no progress, over time, in terms of meaning making. In this context, therapy sessions were tightly structured to prioritize not talk but, instead, the practice of strategies – for example, slow breathing, which Peter could use to calm himself, or humming a favourite tune, which increased his sense of well-being. Likewise, when it came to the therapeutic intervention in the home, meaningful behaviours – going to school, exercising, eating in a healthy way, seeing the psychologist to practice his strategies – were prioritized.

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