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definition?' Gross, 1980: 203), three characteristic elements are crucial in defining asthma: it is an intermittent, variable and reversible airway obstruction (Creer, 1979: 11). Extended symptomless periods alternate with relatively brief episodes of potentially life-threatening shortness of breath. Contrary to popular belief, asthma is a potentially lethal disease. Asthma is a multifactorial condition, i.e. risk factors for developing and maintaining asthma are of a genetic, environmental, behavioural and immunological nature (Levy *et al.*, 2015). The prevalence of asthma is about 5 per cent.

Suffering an asthma attack is a dramatic phenomenon, for the patient involved and for the social environment witnessing it. One of the few descriptions of an acute severe asthma attack is given in the novel *The Skin of Dreams*: 'and now something is very wrong, for it is worse than a strangling, worse than an encirclement . . . it is a metaphysical anguish, a heart that beats too fast, a skin that sweats' (Queneau, 1987: 12–13). Representations of asthma in novels, poems, music, paintings and films add to elucidating the clinical reality of the respiratory disorder (Kaptein *et al.*, 2015).

For behavioural scientists, and for patients, their parents and partners, physicians and the public at large, the question concerning if and how behavioural, psychological and social factors are relevant in the *causation* of asthma is still an unsolved issue. About a century ago, psychoanalytic thinking produced theories on the supposed psychosomatic causes of asthma. Fortunately for patients and their psychosocial environment – mothers in particular – these theories have been refuted. A different theory regarding asthma causation is currently centred on research by behavioural scientists and biomedical researchers: psychological stress is a suspect in the ongoing search for causes of asthma. Prenatal maternal stress in particular is being studied as a potential toxic factor that may affect lung growth and thereby susceptibility to developing asthma (Lee & Wright, 2016: 406).

With the demise of psychodynamic thinking, research and clinical attention changed from causation to (*self-*)*management* of asthma. As behavioural and learning theories were being applied increasingly in research and clinical work in patients with physical disorders, asthma became the object of study as well. Creer is one of the founding fathers of these applications to asthma, especially in children (Creer, 1979). Relaxation therapy, systematic desensitization and biofeedback were examined in children and adults with asthma – with sometimes encouraging but overall disappointing results. As a next step in this line of research, psychologists in a tertiary hospital for patients with asthma in Denver, Colorado, studied determinants of three major outcomes in adults with severe degrees of asthma: length of hospitalization, severity of medication at discharge and rates of rehospitalization. This Denver group demonstrated how cognitions (in particular stigma or denial) and emotions (state and trait anxiety) were determinants of these outcome variables, rather than medical severity of asthma (Kinsman *et al.*, 1977). The way patients make sense of their respiratory disorder apparently is an important determinant of outcome.

The implications of these findings fit with research and clinical work in the area of self-management of chronic illness. The Common Sense Model (CSM) contributes significantly to behavioural research in asthma: cognitions and emotions are important determinants of outcome in asthma (see Chapter 24). Many people with asthma perceive they do not have asthma when they have no current symptoms. 'No symptoms, no asthma' is the title of a paper that summarizes a major finding in patients with this respiratory illness: denial (or 'stigma')

regarding symptoms and signs of asthma is a predictor of poor outcome (Hahn *et al.*, 2006). Given the episodic nature of asthma, a major adaptive task for the afflicted patient is to manage the illness in both symptom-free days (or weeks or months) by using preventer medication and applying additional self-management skills, and during episodes of worsening asthma, that may get out of control. Ignoring the illness when the patient is symptom-free easily transforms into ignoring the illness when symptoms start and develop into a full-blown asthma attack. The consequences of inadequate symptom perception and self-management may be fatal.

Illness perceptions and medication beliefs are the two central theoretical constructs in the CSM that appear to be relevant in this context (for a review of this topic, see Kaptein *et al.*, 2010). The cognitive and emotional representations of asthma, and the views of patients about the preventer and rescue medication for asthma, appear to affect outcome to a fairly large extent. Intervening in these illness perceptions and medication beliefs, therefore, is a logical step in behavioural research that focuses on self-managing the condition. In a randomized trial, illness perceptions and medication beliefs were addressed via individually tailored text messages based on the illness perceptions and medication beliefs in young adults with asthma (Petrie *et al.*, 2011). The information sent online to the patients' smartphones led to more adaptive illness perceptions and medication beliefs, and resulted in higher adherence in the participants in the experimental condition. This translated into significantly higher self-reported adherence rates and level of asthma control.

The encompassing theoretical and clinical framework for behavioural research on patients with asthma is *self-management research and interventions* (Denford *et al.*, 2014; Ritz *et al.*, 2013). Asthma may be the medical condition in which self-management is more important than in any other disease (possibly with the exception of diabetes mellitus): the erratic nature of the disease and the potentially serious consequences of inadequate self-management makes asthma a prime object for self-management research by health psychologists and related health care providers. Various self-management skills are relevant for people with asthma (Barlow *et al.*, 2002): gathering information about the illness and its treatment, managing medication, managing symptoms, managing psychological consequences, adjusting lifestyle, using social support and communicating effectively.

Systematic reviews and meta-analyses are available on the effects of self-management in asthma. Denford *et al.* (2014) review the systematic reviews and meta-analyses on the topic. They conclude: 'interventions targeting self-care are effective for improving asthma symptoms, reducing unscheduled health care use for exacerbations of asthma, and improving adherence to preventive asthma medication' (p. 583). The various elements of self-management skills mentioned above were part of most studies. Denford *et al.* emphasize that 'interventions in which health care providers encourage patients to be actively involved in the consultation/decision making process are likely to be effective for changing behavior' (p. 583), extending the environment of the patient towards partners, health care providers and the public at large as potential objects of intervention in behavioural research on self-management. Cochrane reviews, notorious for their critical stance towards behavioural research, are also cautiously optimistic about the effects of self-management for people with asthma: 'there is moderate to low quality evidence that chronic disease management programmes for adults with asthma can improve asthma-specific quality of life, asthma severity, and lung function tests' (Peytremann-Brideveaux

et al., 2015). Separate mention is deserved for a niche in the self-management research in asthma: expressive writing has been studied to some degree, with rather promising results. Smyth et al. (1999) set the tone in their study of the effects of expressive writing, where patients write about their illness and their coping with it, on asthma outcome measures. Writing about one's illness may impact on asthma measures directly, and be instrumental in encouraging self-management.

Behavioural research and clinical care for people with asthma has come a long way over the past 100 years. Rather than using psychoanalytic notions about asthmatic mothers, modern (health) psychologists assess self-management skills in patients with asthma and focus on installing adaptive illness perceptions and medication

beliefs which are instrumental to providing patients with instruments to control their respiratory problems and live with their illness. The next challenge seems to be incorporating this knowledge into regular medical care. Journal articles and books on self-management for people with asthma are relatively widely available. However, studying recent review papers on 'Update in asthma 2015' in the major respiratory disease journals humbles a cautiously optimistic health psychologist: no mention of the concept of self-management, on how patients cope with asthma, and absence of the concept of patient-reported outcomes (Levy et al., 2015). Shared decision-making and the chronic care model are also virtually absent in the pulmonary diseases arena, although some interesting work has been done (Peytremann-Brideveaux et al., 2015).

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Aetiology and Burden of Low Back Pain

Low back pain (LBP) is 'pain, muscle tension or stiffness localised below the costal margin and above the inferior gluteal folds, with or without leg pain' (van Middelkoop et al., 2010). It is a very common condition affecting most people at some time in their lives, with a lifetime prevalence of up to 80 per cent in industrialized countries (Vos et al., 2012). For many people, back pain is short-lived and clears

up spontaneously without any treatment. However, for some it becomes a persistent problem. Six months after onset, 57 per cent of patients still have pain (Itz et al., 2013) and one year after experiencing activity-limiting pain, there is up to an 80 per cent relapse rate (Hoy et al., 2012). There are indications that the situation may be getting worse, with some studies suggesting that increasing rates of obesity and depression may explain the increase in LBP prevalence (Freburger et al., 2009).