Cognitive analysis of specific threat beliefs and safety-seeking behaviours in generalised anxiety disorder: revisiting the cognitive theory of anxiety disorders

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Introduction

Excessive and uncontrollable worry is the essential diagnostic feature of generalised anxiety disorder (GAD) according to the DSM-5 (American Psychiatric Association, 2013). Patients diagnosed with GAD also present with a selection of other symptoms such as somatic complaints, exhaustion, low self-esteem, insomnia, difficulty relaxing and feeling overwhelmed by day-to-day activities. Attentional and cognitive biases such as catastrophising, emotional reasoning and negative problem orientation (Ladouceur et al., 1998; MacLeod and Rutherford, 2004) have been reported in GAD, as well as a range of maladaptive behaviours such as procrastination, excessive reassurance seeking, checking, avoidance, thought control strategies, distraction, and excessive preparation (Beesdo-Baum et al., 2012).
What on earth is GAD?
The history of the diagnostic entity of GAD is fraught with controversies. Prior to DSM-III it would have probably been classified as ‘anxiety neurosis’ and ‘free-floating anxiety’ and included in what would now fall into ‘panic disorder’, which was seen as especially severe free-floating anxiety (Crocq, 2017). GAD first appeared in the DSM-III as a residual diagnosis, assigned to patients whose emotional problems could not be explained by other anxiety or mood disorders (American Psychiatric Association, 1980; Barlow et al., 1986; Beck et al., 1985). The original definition of GAD in the DSM-III did not include a symptom that differentiated the diagnosis from other anxiety disorders. Serious consideration was given to dropping GAD altogether from the DSM framework because of low inter-rater reliability and low prevalence due to strict hierarchical constraints, meaning that GAD could only be diagnosed when other anxiety or mood disorders had been ruled out (Barlow et al., 1986; Di Nardo et al., 1983). These issues were largely resolved by the revised edition of the DSM-III (DSM-III-R) (American Psychiatric Association, 1987). At this point, excessive and unrealistic worry became a central feature, later refined in the DSM-IV (American Psychiatric Association, 1994) to excessive and uncontrollable worry about a number of domains. Importantly, the strict hierarchical constraints in the trumping rules were lifted with an impact on prevalence estimates, opening the possibility of assigning a GAD diagnosis as a primary or co-morbid diagnosis presenting with other problems (American Psychiatric Association, 1987; American Psychiatric Association, 1994). However, co-morbidity of GAD with anxiety and mood disorders (both as a primary and additional diagnosis) remained high after this change (Brown et al., 2001), and this problem has led to speculation about whether or not GAD is really an independent diagnosis (Brown et al., 1994). It has been suggested that GAD resembles an anxious personality trait (Roemer and Orsillo, 2002), as worry is present in all anxiety disorders, or that it should be understood as a mood disorder, because of its high co-occurrence with major depressive disorder (Tyrer and Baldwin, 2006; Watson, 2005). Although as discussed above this issue was dealt with pragmatically by assigning excessive worry a central importance, important theoretical problems for the GAD diagnosis remain.

From the point at which the DSM-III-R included worry as the central component of GAD, research has increased focus on the role of worry in the maintenance of GAD (Mennin et al., 2004). But what do people with GAD worry about? According to the DSM, the worries of patients with GAD are ‘about number of events or activities’ (DSM-III-R to DSM-5). However, when patients are asked what they worry about the answer is often: ‘What do I not worry about?!’. When pressed, patients do not worry about everything in the world; rather, they worry about the same subjectively important things as people not diagnosed with GAD, namely work/school, family and friends, finances and future prospects, and their health (Breitholtz et al., 1998; Breitholtz et al., 1999; Craske et al., 1989; Dugas et al., 1998a). It is likely that people with GAD also worry more about ‘minor’ matters and perceive their worries as uncontrollable (Craske et al., 1989; Roemer et al., 1997). According to the DSM framework and most theoretical accounts of GAD, it is something about the way in which people diagnosed with GAD worry that differentiates them from others, but because the worry content of people diagnosed with GAD does not differ from the normal population, theoretical models of excessive worry must explain why people with GAD experience more severe worry, which becomes persistent.

The avoidance model of worry
Excessive, uncontrollable worry is the cardinal symptom of the GAD diagnosis in the DSM (American Psychiatric Association, 2013), but is also a feature of other anxiety disorders, depression and psychotic disorders (e.g. Brown et al., 1992; Purdon and Harrington, 2006). Worry has been described as a ‘chain of thoughts and images, negatively affect-laden and relatively uncontrollable’ (Borkovec et al., 1983) that are manifested in the form of ‘What if . . . ?’ questions, anticipating potential future threats. The
aim of worry has been postulated to identify future potential threats and attempts to problem-solve (Borkovec et al., 2004; Davey, 1994a; Mathews, 1990). Furthermore, worry has been associated with information-seeking and problem-focused strategies (Davey et al., 1992; Davey and Meeten, 2016). As such, worry can be understood as attempt to problem solve; pathological worry occurs when high levels of anxiety thwart the problem-solving process (for review, see Davey and Meeten, 2016). Most authors are not clear to what extent worry is deliberate. As it is sometimes defined as uncontrollable, this would suggest that it is not seen as voluntary. However, given the emphasis on failed problem-solving in several theories, this is a matter of debate. A likely solution to this apparent contradiction is the idea of ‘worry-chains’ in which intrusions occur and the person then tries to deal with them in a ruminative process (Davey, 1994a). It is experienced as a chain but is, we suggest, a mixture of uncontrolled thinking and failed attempts to exert control. When such worry is accompanied by negative mood, it is more likely to become unpleasantly persistent (Dash and Davey, 2012). In this way anxiety can make worries become more intrusive and subjectively uncontrollable (Wells and Morrison, 1994).

The aforementioned definition of worry stems from the avoidance model of worry of GAD (AMW), developed by Borkovec (e.g. Borkovec et al., 2004), without doubt the most influential in our quest to understand the maintenance of worry. The AMW proposes that worry is a verbal-linguistic thought process that inhibits distressing mental imagery and associated somatic and emotional symptoms. Through that process of inhibition or suppression of aversive emotions, engagement in worry is said to be negatively reinforced (Borkovec et al., 2004), thus increasing its frequency. Furthermore, because the worst-case scenario usually does not occur, positive beliefs about worry are reinforced (‘Worry helps me prepare’) (Behar et al., 2009; Borkovec et al., 1999).

The AMW has received some empirical support from correlational studies, and elements of it have been incorporated into other theoretical models of worry and GAD. For example, the positive beliefs about worry component has been included in the intolerance of uncertainty model (IUM) (e.g. Dugas and Robichaud, 2007), and the meta-cognitive model (MCM) (Wells, 1999; Wells and Matthews, 1996). However, the AMW does not explain why worrying is an adaptive problem-solving strategy for some people, but an avoidance strategy for others. It is evident that all people worry about a range of problems, especially those that are important to them, such as their health, career/exams or finances. As the AMW is grounded in the two-process model of anxiety/fear put forward by Mowrer (1960), the model conceptualises worry as an avoidance strategy for perceived future threats, negative images and somatic arousal, and is as such negatively reinforced through omission or termination of anxiety. So, it is anxiety that is being avoided according to this account; worry is conceptualised as involving mood repair. The problem with this understanding is that when worry is adaptive it should also be negatively reinforced – because it helps the person to arrive at a problem-solution and control the anxiety when faced with a problem. So, the theory clearly does not successfully differentiate between when worry is adaptive and when it is excessive. Furthermore, people that are treated successfully do not stop worrying when they are faced with a problem. What changes occur during treatment that make the person capable of worrying at a normal level? Has the function of worry changed? How so? The original two-stage theory of anxiety disorders (Rachman, 1976) does not fully account for the way behaviours are involved in the maintenance of anxiety (Salkovskis, 1991; Salkovskis, 1996a).

**Cognitive models of worry**

The first cognitive model of GAD was put forward by Beck et al. (1985). The model was further elaborated by Clark and Beck (2011) who sought to merge it with other models of GAD, namely the AMW, IUM and the MCM. Beck et al. (1985) and Clark and Beck (2011) proposed that the
harm that people diagnosed with GAD believe that they are threatened with is focused on helplessness, inadequacy and lack of personal resources to cope, especially in relation to personal goals and values. According to Beck et al. (1985), what characterises the threat belief of the GAD patient is the fear ‘of failure and the consequences of failure…’. Furthermore, the maladaptive core beliefs that the GAD patient holds about themself, others and the future are similar to what can be seen in depressed patients (‘I’m a failure’, ‘Others are better than me’, ‘My future is uncertain’). Clark and Beck (2011) conceptualised worry as a cognitive avoidance strategy that is aimed to reappraise automatic threat interpretations and establish a sense of safety in an attempt to deactivate the hypervalent threat and vulnerability schemas that characterise generalised anxiety’ (Clark and Beck, 2011, p. 394).

Other cognitive theoretical models of GAD have proposed that maladaptive core beliefs in relation to uncertainty (the IUM; Dugas and Robichaud, 2007) and thought processes (the MCM; Wells, 1999; Wells and Matthews, 1996) are essential to understand the maintenance of excessive worry and what is needed to treat it. The IUM proposes that central to GAD is intolerance of uncertainty, which makes patients with GAD susceptible to appraise any perceived uncertainty in a threatening manner (Dugas and Robichaud, 2007). In response to perceived uncertainty, positive beliefs about worry are activated, which then leads to worry as a coping strategy, and the worry activates negative problem orientation, symptoms of anxiety and cognitive avoidance. In this model, cognitive avoidance has the function of avoiding distressing thoughts and images as well as anxious arousal. Initially theorised to be distinctive of and specific to worry (Dugas et al., 1998b; Ladouceur et al., 1999), intolerance of uncertainty has since been found to be connected to obsessive-compulsive disorder (OCD) symptoms and therefore not specific to GAD (Carleton et al., 2012; Holaway et al., 2006; Romero-Sanchiz et al., 2015). Furthermore, clinical experience with patients diagnosed with GAD finds that they are not intolerant of uncertainty in every situation. That is, people with GAD can be worried about their work performance but can feel confident about performing in front of people. Also, people with GAD do have worries about matters that involve them, or their loved ones, which points to the fact that if intolerance of uncertainty is a characteristic of this group, it probably interacts with core beliefs about oneself, others and the world (Beck, 1976). A similar effect is for example seen in OCD where the intrusions (obsessions) are about something that matters to the patient, e.g. his family or religion.

The MCM proposes that the problem in GAD and excessive worry is that the patient holds counterproductive meta-cognitive beliefs about worry (Wells, 1999; Wells and Matthews, 1996), i.e. patients with GAD hold both positive and negative beliefs about worry. The positive beliefs about worry can increase motivation to engage in worrying as a means of coping or resolve a problem (type 1 worry). However, the negative beliefs about worry can lead individuals with GAD to appraise the presence of worries as dangerous. That is, patients with GAD appraise the presence of worry in a negative way (type 2 worry), because they hold negative beliefs about worry (‘Worry can make me lose control’). These meta-cognitive beliefs are hypothesised to lead to unhelpful coping behaviours such as worrying or rumination, active threat monitoring, and other unhelpful coping behaviours such as avoidance or thought suppression (Wells, 2008; Wells and Matthews, 1996). These cognitive processes then prevent the disconfirmation of negative meta-cognitive beliefs, and therefore maintain the emotional disorder by focusing attention on thoughts or bodily states, which are appraised as threatening. This can lead to intrusive thoughts becoming more intrusive and bodily states more intense and increasing the frequency/magnitude of the threatening stimuli, hinder adaptive coping and divert attention from information that is incompatible with negative meta-cognitive beliefs (Wells, 2008; Wells and Matthews, 1996). The MCM differs from other cognitive models of emotional disorders in the way that it proposes that it is not the content of thoughts (‘I will not be able to cope’) that are the cause of emotional perturbations and emotional disorders, but unhelpful thinking processes and how they lead to negative meta-cognitive appraisal (Wells, 2008).
Here it is important to highlight that the IUM, the MCM and the Beckian models of GAD and excessive worry all conceptualise worry as a coping strategy (Clark and Beck, 2011) and although they incorporate the concept of safety-seeking in the conceptualisation of excessive worry they do not identify excessive worry as a safety-seeking behaviour. Most importantly, the models already discussed do not explain when worry is an adaptive coping strategy and when it is problematic, and why this adaptive strategy can become problematic.

**Cognitive behavioural analysis of excessive worry**

The cognitive theory of emotional disorders states that when people ‘believe that they are threatened with either physical or social harm’ (Beck, 1985; Salkovskis, 1991; Salkovskis, 1996b) they will experience anxiety. Importantly, the cognitive theory of anxiety explicitly specifies that what determines an emotional response is how a person interprets the situation in which they find themselves. To be able to conceptualise why they are anxious in any given situation, we have to ask what this situation means to the person, that is, how it is experienced as threatening or dangerous? What is it about the situation or event (e.g. talking to a stranger or experiencing an intrusive thought about harming one’s child) that the person fears? This understanding of emotional problems radically differs from the two-process theory where anxiety itself is purported to be the threatening stimuli (e.g. Rachman, 1976). The work by Beck et al. (Beck et al., 1985; Beck et al., 2005) together with Salkovskis’ work (Salkovskis, 1991; Salkovskis, 1996b) on safety-seeking behaviours, has laid the foundation for highly effective psychological treatments for other anxiety disorders, namely: obsessive compulsive disorder (Salkovskis, 1985), social anxiety disorder (Clark and Wells, 1995), panic disorder (Clark, 1986), post-traumatic stress disorder (Ehlers and Clark, 2000), and severe health anxiety (Warwick and Salkovskis, 1990). Note that these treatments were predicated on very specific formulations of the focus of anxiety and factors involved in its maintenance. The cognitive theory explicitly conceptualises these disorders in terms of the threat beliefs that characterise them and the range of belief-maintaining reactions that arise from threat appraisals, including cognitive and physiological responses and safety-seeking behaviours (Clark, 1999; Salkovskis, 1991; Salkovskis, 1996b). As such, all cognitive behavioural conceptualisations of anxiety disorders are ways of understanding the experience of people with anxiety disorders, but not about explaining or predicting diagnostic categories in the DSM. Threat perception is relevant to all anxiety problems and therefore relevant across diagnoses; it is the focus of the perceived threat that is specific.

The cognitive theory states that the intensity of threat appraisal is based on a synergistic interaction between perceived awfulness of threat (specific personal meaning of the threat) and perceived probability of threat along with perceived coping/rescue factors (Beck, 1985; Salkovskis, 1996b). An example of this synergistic effect is the fact that over-estimation of awfulness of a situation leads to over-estimation of the probability of it actually happening (Butler and Mathews, 1983; Lucock and Salkovskis, 1988). Similarly, if treatment focuses on helping the patient to correct his over-estimation of awfulness (e.g. ‘If I forget my homework others will think negatively of me’), the perceived likelihood of this actually happening will decrease simultaneously (Lucock and Salkovskis, 1988). Although all factors are important in understanding how threat appraisal is made, the specific meaning that the person ascribes to the threat is the most important when it comes to formulating and understanding each individual’s anxiety. For example, a threat appraisal is made if the threat is considered unlikely, but the specific meaning ascribed to it by the person is truly awful (e.g. ‘I am dying’; ‘People will reject me’) (Salkovskis, 1996b). (Here it is important to note that the consequences of being rejected by other people will differ between people. For some it could mean being socially ostracised and living as an outsider away from the people they love; for
others it could mean total failure of your ambitions.) The threat appraisal then drives responses that are key factors in maintaining the tendency to make exacerbated threat appraisal: physiological (e.g. increased heart rate), behavioural (safety-seeking behaviours) and attentional (selective attention focused on the threat). These factors then maintain the threat appraisal, e.g. by preventing the individual from having the relevant experience to correct his exacerbated threat appraisal (Salkovskis, 1996b). Safety-seeking behaviours play a crucial role in this maintenance. These behaviours are meaningfully linked by the person’s internal logic to the perceived threat. For example, patients with panic problems try to control their racing thoughts by focusing on one specific topic because they believe that having racing thoughts means they are ‘going crazy’ (Salkovskis et al., 1996). These safety-seeking behaviours may sometimes decrease or stabilise anxiety in the short term because the person mistakenly attributes not ‘going crazy’ to keeping their thoughts under control. In this way the deployment of safety-seeking behaviour prevents the person with panic from discovering that the things they are afraid of do not happen.

Compared with other anxiety disorders, research on specific threat beliefs and safety-seeking behaviours in GAD is almost non-existent. We have yet properly to answer the question ‘what is it that people with GAD are avoiding?’ from the standpoint of the cognitive behavioural theory of emotional disorders (Beck et al., 1985; Clark and Beck, 2011; Salkovskis; 1991; Salkovskis, 1996a; Salkovskis, 1996b). The answer to this question should lead us to the threat beliefs and safety-seeking behaviours that characterise GAD and excessive worry.

The AWM does not explain when and why worry is sometimes an avoidant strategy and when it is an adaptive coping behaviour, which any theory of how anxiety is maintained has to be able to do (Salkovskis, 1991). Adaptive coping behaviours differ from safety-seeking behaviours both in intention and therefore consequences. By definition, safety-seeking behaviours are perceived to be helpful but are in the long term involved in maintaining exaggerated threat appraisals. Adaptive coping strategies are intended to deal with the person’s anxiety or another realistically solvable problem rather than the ultra-negative fears that drive safety-seeking behaviours.

To understand better the function of excessive worry and how it differs from potentially adaptive worry, we must look at the intention or function of the behaviour (e.g. Öst and Breitholtz, 2000). We propose that excessive worry should be conceptualised as a safety-seeking behaviour, that is, a response to over-estimation of threat and perceived lack of coping strategies. By contrast, when it is an adaptive coping behaviour, worrying is used to problem solve realistically and apply possible solutions. Here it is important to distinguish the initiation of worry, such as ‘What if . . . ?’, and the general tendencies to experience worries from the active use of worry as a strategy to reach safety, i.e. excessive worry. In this account, the function of excessive worry is to try and predict situations or events that the person believes can harm her so she/he can take action to prevent harm or control the situation. As the person engages in excessive worry, they take what they believe are necessary steps to prevent the catastrophes (that is, they seek a solution to the problem), by engaging in other safety-seeking behaviours such as: excessive preparation, behavioural avoidance, overt checking (checking whether the oven is clean enough), covert checking (have I done everything?), seeking reassurance (excessive checking with an interpersonal component) and hypervigilance. The intention of these safety-seeking behaviours is to reduce uncertainty. If the threat appears to be avoided or minimised the person will attribute, incorrectly, the success to the safety-seeking behaviours (‘If I had not worried and made sure then . . .’) and the threat beliefs will remain unchallenged.

This cognitive behavioural understanding of excessive worrying explains why people diagnosed with GAD hold positive beliefs about worry, because it is self-evident that people have positive beliefs about using worry safety-seeking strategies that they perceive to be keeping them from harm. The socially anxious person incorrectly believes that avoiding eye contact has protected him or her from ridicule and they therefore have positive beliefs about avoiding eye contact without being aware of the actual negative consequences.
The function of worrying as a safety-seeking strategy is thus to gain certainty through anticipating every possible future threat to the person’s goals by seeking to be sure that they have prevented or controlled the appraised threat. What preserves the worry process is that the person is trying to reach certainty of having found an appropriate solution to the perceived threat and they will not stop until this certainty is reached. While engaging in worrying and other safety-strategies the person actively monitors how certain they feel using various objective and subjective criteria. There is evidence that in excessive worry people use an increased number of objective and subjective criteria to decide when a desired level of certainty has been achieved, i.e. elevated evidence requirements (e.g. Davey and Meeten, 2016). This does not necessarily mean that people diagnosed with GAD have generalised negative beliefs about uncertainty that are the root of the problem. Instead, we hypothesise that high levels of threat perception increase intolerance of uncertainty. Nevertheless, we need to understand the role of uncertainty in GAD and its relation to threat beliefs and safety-seeking behaviours.

At this point, it is appropriate to link the cognitive hypothesis of excessive worry to the mood-as-input hypothesis about the preservation of worry (Davey and Meeten, 2016; Startup and Davey, 2001) in relation to the person’s decision to discontinue worry when it is used as a problem-solving activity. The mood-as-input hypothesis states that negative mood interacts with problematic ‘as many as can’ stop-rules in the preservation of worry. Worriers start the worry bout with the goal of doing absolutely everything that they can to arrive at a solution and to do this they rely on subjective criteria (such as their mood state) to decide whether they have achieved certainty or not. They interpret the continued presence of negative mood as information indicating that they have not yet done enough and therefore need to continue worrying. In other words, excessive worriers are actively trying to reach complete certainty that they have done enough. However, they typically fail to reach the desired level of certainty because the task at hand bears such a high personal significance (i.e. threat beliefs) which leads to elevated evidence requirements for reaching certainty. This can lead the excessive worrier to become stuck in the worry bout, never reaching the desired certainty of safety.

Excessive worrying is thus most appropriately conceptualised as a safety-seeking behaviour, where excessive worry is about preventing or minimising the impact of feared catastrophes that, if they happened, the person would interpret/understand in a way that is consistent with their core beliefs: ‘I’m a failure, I’m vulnerable, I’m hopeless, I’m incompetent, I’m inadequate, others will reject me. So, the person engages in worry as a safety-seeking strategy, which makes it excessive, and they perceive the worries to have prevented or minimised the feared catastrophe – ‘if I had not worried and prepared then . . .’. In contrast, when worry is used as a strategy to solve a problem which the person realistically can resolve or to deal explicitly with the feeling of anxiety then it can be an adaptive coping behaviour because they are not trying to reach certainty about safety, but just using worry to cope with a problem or a feeling. Some experimental evidence supports this conceptualisation of adaptive vs maladaptive worry. For example, participants instructed to focus on the possible negative outcome and implications of a real-life worry showed greater impairment in problem-solving efficiency compared with those instructed to approach a real-life worry in an objective problem-solving manner (Llera and Newman, 2020). In this way, adaptive worry can be regarded as self-limiting. This is further supported by studies indicating that high-worriers show higher evidence requirements for problem-solutions compared with low-worriers (Davey, 1994b) and that high-worriers utilise ‘as many as can’ rules because they believe worry to be necessary to prevent negative outcomes (Davey et al., 2005). Thus, to determine whether worry is an adaptive or maladaptive strategy we need to understand the focus of the worry. Worry becomes maladaptive when it is used to reach safety but can be adaptive when it is used as approach-supporting behaviour. Is it about something resolvable: ‘What if I drill a hole for the cupboard in the wrong place?’ or unresolvable catastrophe: ‘What if I make a mess of putting the cupboard up and ruin everything for everyone?’ The former example has multiple potential realistic solutions. How are you going to solve the problem that you might ‘ruin everything for everyone?’
Inflated responsibility and GAD

What, then, is the worried person trying to be certain about? Can such certainty be achieved? In trying to answer this, we would like to introduce the concept of inflated responsibility for harm in order to try to understand what the worryer is trying to achieve. The role of responsibility in GAD has not been extensively studied but there are a few studies indicating that inflated sense of responsibility does play a role in GAD and its maintenance (e.g. Startup and Davey, 2001; Startup and Davey, 2003; Sugiura and Fisak, 2019) and in other anxiety disorders (Tolin et al., 2006). Inflated sense of responsibility for harm or the prevention of harm has been theorised as a key concept in the cognitive behavioural formulation of OCD (e.g. Salkovskis 1985), primarily focused on the appraisal of internal events, specifically intrusions. Here it is proposed that the use of the inflated responsibility account can be extended to GAD in a way that the inflated sense of responsibility affects how external situations (e.g. hosting a dinner party, taking an exam, the well-being of your family) are (mis)interpreted in a way which makes the GAD sufferer over-estimate his responsibility for the outcomes of these situations and the perceived probability of something going wrong (synergistic interaction between awfulness and probability), and under-estimate his ability to cope with the situation.

To be responsible is to have a duty to deal with something or have control over certain important negative outcomes; “The belief that one has power that is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes may be actual, that is having consequences in the real world, and/or at a moral level” (Salkovskis et al., 1996). In OCD, an inflated sense of responsibility becomes a problem because intrusive thoughts, images, impulses or doubts are perceived as indications of being excessively responsible for harm or the prevention of it (e.g. Salkovskis, 1985). In OCD the inflated sense of responsibility pertains to the way in which unwanted thoughts, images, impulses or doubts are (mis)interpreted. The occurrence of these intrusions is taken to imply responsibility for causing or preventing harm; having had the thought, the person must then respond. By experiencing the intrusive thought without using safety-seeking behaviours, the patient has the opportunity to consider an alternative, less threatening explanation of their experience and learn that the occurrence of intrusions does not imply that he is, or might be, responsible for causing or preventing harm (Salkovskis, 1985).

However, confining responsibility to OCD neglects the importance that the sense of responsibility plays in our human experience in general, and perhaps in anxiety disorders, other than OCD (e.g. Jones and Rakovshik, 2019; Rachman et al., 1995). We can feel responsible for certain outcomes without the sense of responsibility being inflated. In fact, the goal of cognitive behavioural therapy for OCD is not to teach the patient to be irresponsible. The goal is to help them experience the appropriate amount of responsibility in relation to their obsessional themes.

The sense of being responsible for an outcome, either by implication or by ascribing it to yourself, is triggered when a person has doubts about fulfilling their duty (What if…?) and can (and will) be held accountable for the outcome. The accompanying threat appraisal focuses on being responsible for harm or unwanted outcomes, and will therefore elicit emotions such as anxiety, guilt, blame or doubt. This means that perceived responsibility can be especially troublesome when the magnitude of felt responsibility is not proportional to the situation, i.e. it is inflated.

Here it is proposed that the theme of threat beliefs in GAD can be conceptualised as a tendency to understand the outcome of external everyday situations such as making the cake for your child’s birthday party, taking exams, or the well-being of your family and friends, in a way that you bear responsibility for the outcome and that you are accountable to others for the outcome. The worrier will over-estimate his responsibility for and under-estimate the role of other factors contributing to the outcome and will take the perceived necessary steps to ensure the right (safe) outcomes (and to prevent negative outcomes) through the use of safety-seeking behaviours such
as over-preparation, checking, excessive list-making and excessive reassurance seeking. Furthermore, the worrier will respond to the perceived threat by thinking of every possible outcome and solution and whether they have done enough, to try and be prepared for the situation and prevent the feared outcome. They will use such tactics to try and achieve complete certainty that they have fulfilled their responsibility and that they can defend his actions as an accountable person. When using worry as a strategy to reach certainty of safety it will actually increase uncertainty and doubt, in the same way as repeated checking seen in the context of OCD increases uncertainty and doubt (Rachman, 2002; Radomsky et al., 2006; van den Hout and Kindt, 2003). Interestingly, this occurs both in people with and without OCD and could reasonably be expected to happen in GAD. Other efforts to gain certainty, e.g. overt checking, reassurance seeking and over-preparation, will also increase uncertainty and doubt, and maintain the problem.

As stated above, we propose to conceptualise the theme of threat in GAD as perceived likelihood and awfulness (and perceived lack of ability to cope) of not fulfilling one’s perceived responsibility which will have personal consequences, such as confirming the belief that you are ‘dangerous’, ‘a failure’, you ‘can’t cope with life’, you ‘will never achieve anything’, and ‘everyone will blame you’. This inflated sense of responsibility makes the worrier feel a pressure to meet expectations (imposed by self or others) (Beck et al., 1985) and afraid of how other people will ‘judge’ them if and when they do not fulfil their responsibility, i.e. if they fail, or do not cope.

**Clinical implications**

We have proposed that excessive worry should be understood as a safety-seeking behaviour (in GAD specifically and anxiety problems in general). Furthermore, the theme of threat in GAD should be understood as the fear of failing to meet perceived safety requirements in day-to-day activities, i.e. the tendency to over-estimate one’s responsibility for the outcome of these activities.

What are the clinical implications for this cognitive behavioural understanding of excessive worrying? As always, a therapist should work in a collaborative manner with patients to develop a shared understanding of their anxiety problem. A case formulation of a recent situation where the patient was not worrying but then experienced an intrusive worry is developed as part of reaching a ‘shared understanding’. The goal of the formulation would be to identify threat appraisals and responses to these, including emotions (anxiety, anger, sadness, guilt, doubt), physiological responses (i.e. muscle tension, pain, headache, stomach ache), selective attention, felt sense of uncertainty, and finally safety-seeking strategies including worrying, checking, excessive reassurance-seeking, procrastination and over-preparation. In such formulation, central importance is given to the function of worry and other safety-seeking behaviours and idiosyncratic threat beliefs. This process includes normalisation of worry and exploration of how an otherwise helpful problem-solving strategy can become problematic, i.e. that ‘the solution becomes the problem’. According to this understanding, the feeling of uncertainty plays an important role, as it can act as a trigger and the safety-seeking behaviours are intended to eliminate the mismatch between felt sense of certainty and desired level of certainty.

From the shared understanding, an alternative, non-threatening understanding is developed in context of the Theory A vs Theory B model (Salkovskis, 1996b). Theory B should have the aim of providing the patient with an alternative, less dangerous explanation of the problem and to increase his motivation for overcoming his anxiety. The evidence for Theory A (‘The problem is that if I make mistakes and fail, people will judge me for my lack of effort and responsibility. I therefore have to reach absolute certainty that I am doing everything correctly by making myself worry, repeatedly seeking reassurance and checking that there is no...')

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The problem is that I am someone who thinks that the most important thing in the world is to be perfect and therefore I am afraid that if I make any mistakes this is a failure, and people will condemn me. I am afraid of this because it is important to me that others see me as a completely reliable and trustworthy person. Unfortunately, my attempts to reach certainty by making myself worry, repeatedly seeking reassurance and checking will reinforce my sense of uncertainty) are compared using discussion of previous experience and behavioural experiments that are used to generate new and relevant experiences. Specific threat beliefs are tested as well as the (in)effectiveness of using worry and other safety-seeking behaviours in an attempt to be and feel safer. Examples of behavioural experiments would be the use of responsibility pie charts, worry free time (time off from responsibility) and support seeking as an alternative to excessive reassurance seeking (Halldorsson and Salkovskis, 2017; Halldorsson et al., 2016; Neal and Radomsky, 2019; Neal and Radomsky, 2020). As well as testing threat beliefs and the effectiveness of safety-seeking behaviours it would be essential to give the patient an opportunity to experience that they are capable of coming up with adequate solutions to problems without reaching their desired stage of certainty, i.e. increase problem-solving confidence by helping them to reframe the unresolvable ‘What if…?’ thoughts into the more realistically resolvable problem statements ‘What can I do to solve…?’ Furthermore, in line with the cognitive theory of anxiety disorders, emphasis should be on over-estimation of the awfulness of the feared catastrophe as opposed to the likelihood of it happening (e.g. Lucock and Salkovksis, 1988; Salkovskis, 1996b).

Summary and future directions

In this paper we have incorporated the concept of inflated responsibility in the cognitive behavioural analysis of excessive worry and GAD. Inflated responsibility is a key concept in the conceptualisation of OCD and has until now not been incorporated in the formulation of GAD by existing models. Furthermore, this paper introduces the idea of alternative explanation (Theory A vs Theory B) in formulation of GAD, by focusing on threat beliefs and safety-seeking behaviour, making it a clearer and more comprehensive cognitive behavioural account of the problem.

In this cognitive behavioural account, excessive worry is seen as a response to over-estimation of threat and under-estimation of ability to cope with situations that the individual perceives as potentially threatening to his personal goals. The over-estimation of threat and under-estimation of coping ability flows from a general tendency to over-estimate one’s responsibility for the outcome of situations of personal importance. In response to appraised threat, the worrier uses various safety-seeking strategies to find possible solutions to the threat and actively tries to reach complete certainty that he will be able to cope with the threat. Because the focus of worry has such strong personal importance, evidence required to be confident of safety is elevated to the point of requiring certainty. In an attempt to achieve this, the worrier uses subjective criteria such as mood or physical sensation as stop criteria. The attention is focused on these criteria and the mismatch between current state and the desired state of complete certainty is taken as a signal that the threat has not been dealt with.

What studies are needed to test this cognitive behavioural account of excessive worry? Firstly, we need to ask and try to answer how people with GAD perceive the function of excessive worry and the intentions of their worrying, i.e. what is the perceived function of their worries and other safety-seeking behaviours? If excessive worry is best conceptualised as a safety-seeking strategy, then the cognitive model of emotional disorders would predict that we could logically link this behaviour (and others, such as excessive reassurance seeking) to specific threat beliefs, in this context, fear of failing to meet expectations and inability to cope. Secondly, the work that has been done on the mood-as-input hypothesis has provided evidence for how worry perseveres
(Meeten and Davey, 2011; Startup and Davey, 2001). More work is needed to improve our understanding of the use of objective and subjective criteria, such as mood, physical sensations or felt sense of uncertainty in the maintenance of excessive worry and how these criteria are used to determine whether safety has been gained (Wahl et al., 2008).

We propose that a specific research focus on how the experience of uncertainty is used as a subjective criterion to determine whether a goal has been reached (i.e. has the threat been dealt with or thwarted?) in relation to excessive worry is warranted. Furthermore, we think it is important to experimentally compare the relative effect of behavioural experiments (with focus on test threat beliefs and the effect of safety-seeking behaviours) versus graded exposure (via habituation) on anxiety, threat beliefs and safety-seeking strategies when treating GAD. We feel that our proposed cognitive behavioural account of excessive worry can begin to clear up the theoretical heterogeneity and some of the conceptual confusion that has characterised the understanding of GAD and excessive worry and generate fresh research interest and effort into this debilitating psychological problem.

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