CHAPTER ONE

General introduction
F E A R  I S  a  u s e f u l ,  a n d  s o m e t i m e s  l i f e – s a v i n g  e m o t i o n .  F o r  t e n s  o f  t h o u s a n d s  o f  y e a r s  i t  h a s  t o l d  u s  t o  r u n  f r o m  t h e  s a b r e – t o o t h e d  t i g e r ,  b a c k  a w a y  f r o m  t h e  s n a k e  a n d  g e n e r a l l y  a v o i d  h a r m f u l  o r  d a n g e r o u s  t h i n g s  a n d  s i t u a t i o n s .  O u r  a n c e s t o r s  l e a r n e d  q u i c k l y  f r o m  e n c o u n t e r s  w i t h  s u c h  h a r m f u l  s i t u a t i o n s  t h a t  t h e s e  w e r e  b e s t  a v o i d e d ,  a n d  l e a r n e d  t o  b e  p r e p a r e d  t o  t a k e  i m m e d i a t e  a c t i o n  i n  s u b s e q u e n t  e n c o u n t e r s ( S e l i g m a n ,  1 9 7 1 ) .  W e  h a v e  e v o l v e d  w i t h  t h e  a b i l i t y  f o r  r e f l e x i v e  a n d  i m m e d i a t e  a c t i o n  t o  b e  m u s t e r e d  f r o m  o u r  b o d i e s  i n  t h e  c a s e  o f  t h r e a t e n i n g  s i t u a t i o n s ,  s o  t h a t  b o t h e r s o m e  ( a n d  s l o w )  d e l e b r a t i o n  w i t h  o u r  c o g n i t i v e  s y s t e m s  i s  u n n e c e s s a r y .  I n  e n c o u n t e r s  w i t h  s a b r e – t o o t h e d  t i g e r s ,  o n e  w o u l d  f i g u r a t i v e l y  n o t  t h i n k  t w i c e  a b o u t  r u n n i n g  a w a y — o n e  w o u l d  l i t e r a l l y  n o t  e v e n  t h i n k  o n c e  a b o u t  r u n n i n g  a w a y .

T h e s e  r e s p o n s e s  t o  t h r e a t e n i n g  s t i m u l i  a r e  r a p i d ,  a u t o m a t i c ,  a n d  r e q u i r e  n o  c o n s c i o u s  e f f o r t  o r  t h i n k i n g ( Ö h m a n ,  1 9 8 6 ) .  T h r o u g h  t h e  p r o c e s s  o f  n a t u r a l  s e l e c t i o n ,  h u m a n s  w h o s e  r e f l e x i v e  a v o i d a n c e  b e h a v i o u r s  w e r e  s u c c e s s f u l  i n  a v o i d i n g  d e a t h  b e f o r e  r e p r o d u c i n g  w e r e  f a v o u r e d ,  a n d  t h e s e  t r a i t s  l i v e d  o n  i n  s u b s e q u e n t  g e n e r a t i o n s .  I n  t h i s  w a y ,  t h e  m e c h a n i s m s  o f  f e a r  h a v e  h a d  t r e m e n d o u s  e v o l u t i o n a r y  b e n e f i t s  f o r  m a n k i n d ;  e v e n  m o r e  s o  s i n c e  w e  h a v e  t h e  a b i l i t y  t o  l e a r n  w h a t  t o  a v o i d  n o t  o n l y  f r o m  f i r s t – h a n d  e n c o u n t e r s ,  b u t  a l s o  f r o m  s e c o n d – h a n d  e x p e r i e n c e s  o f  o t h e r  h u m a n s .

E v e n  n o w ,  t h e s e  u n d e r l y i n g  m e c h a n i s m s  f o r  f e a r  a n d  a v o i d a n c e  a r e  s t i l l  i n  p l a c e ,  a n d  a r e  b u r i e d  d e e p  i n  o u r  n e u r o s e s y s t e m s .  E n c o u n t e r s  w i t h  s a b r e – t o o t h e d  t i g e r s  a n d  s n a k e s  a r e ,  p r e s u m a b l y ,  e x c e d i n g l y  u n c o m m o n  i n  t h e  2 1 s t  c e n t u r y ;  h o w e v e r ,  o u r  f e a r s  h a v e  n o t  d i m i n i s h e d  c o m m e n s u r a t e l y  w i t h  t h e  p r e v a l e n c e  o f  t h e s e  p r e d a t o r s  a n d  s i t u a t i o n s ,  a n d  t h e s e  p r i m a l  f e a r s  s t i l l  p e r s i s t  i n  h u m a n  p s y c h o l o g y ( Ö h m a n ,  2 0 0 9 ) .  A s  a  t e s t i m o n y  t o  t h e  a n c i e n t  o r i g i n s  o f  s o m e  o f  t h e s e  f e a r s ,  p h o b i a s  f o r  a n c i e n t  a n d  r e l a t i v e l y  h a m m e r s e s t h i n g s  ( e . g . ,  s p i d e r s ,  f a r e o f t h e  d a r k )  a p p e a r  t o  b e  o v e r w e l m i n g l y  m o r e  c o m m o n  t h a n  f e a r s  f o r  c o m m o n ,  m o d e r n ,  o b j e c t i v e l y  ( a n d  s t a t i s t i c a l l y )  m o r e  d a n g e r o u s  t h i n g s  s u c h  a s  e l e c t r i c a l  o u t l e t s ,  p o w e r  t o o l s ,  c a r s ,  s t e p  l a d d e r s ,  e t c . ( S e l i g m a n ,  1 9 7 1 ) .

I n d e e d ,  m o s t  o f  t h e  a n c i e n t  f e a r s  t h a t  h a v e  s e r v e d  c o m m e n d a b l y  t o  a v o i d  g e t t i n g  u s  k i l l e d  i n  t h e  p a s t  h a v e  l i t t l e  r e l e v a n c e  t o  m o d e r n  l i f e  f o r  m o s t  h u m a n s  i n  u r b a n i s e d  s o c i e t i e s .  F o r  e x a m p l e ,  a l t h o u g h  a n  e n c o u n t e r  w i t h  a  w o l f  m a y  h a v e  b e e n  c a u s e  f o r  a t l e a s t  s o m e  a l a r m  2 0 , 0 0 0  y e a r s  a g o ;  t h e s e
days there is generally no need for an immediate, unconscious fight–or–flight response when encountering a non–rabid, non–murderous household dog.

However, in some people, a dazzling range of expected and unexpected stimuli and situations can still trigger those ancient fear mechanisms in the modern world. The ingrained and automatic fear response that was once evolutionarily useful for survival sometimes leads to wholly disproportionate and inappropriate reactions to commonplace and safe stimuli. Our body responds in such a way as to expect catastrophic outcomes from a benign occurrences and our survival instinct is falsely triggered. What compounds this issue is that the ‘flight’ portion of the survival instinct actively blocks the possibility of learning benign outcomes to benign occurrences: we will never learn that the spider has no immediate intention of killing us if we have left the room by the time it has lifted any of its eight† legs.

The persistence of pre–modern fears into modern times has not gone unnoticed, and the term evolutionary mismatch has been coined to describe the discrepancy between these ancient origins and modern day life (Riggs, 1993). Although for a long time between antiquity and the modern era, anxiety was not classified as a distinct disorder (Crocq, 2015); the modern term for an exaggerated, irrational is a phobia. The name, derived from the Greek Phobos or ‘fear’, the mythical twin brother of Deimos, or ‘terror’; is generally given to fears that are perceived to be extreme and often irrational, i.e., disproportionate to the stimulus. Moreover, these are highly distressing and stressful: when one is continuously vigilant for e.g., disapproving faces from others, or continuously scanning for dogs or spiders, adapting to a daily life that is filled with people, spiders and dogs can get very tiresome very quickly.

The identification of these fears as disproportionate and disabling have led to them being classified as ‘pathological’, and worthy of medical and diagnostic attention. Modern classification systems such as the broadly used Diagnostic and Statistical Manual (DSM) divide phobias into three distinct groups, as subcategories of the broader range of anxiety disorders. Firstly, there is social phobia, or fear of social situations and interactions. Secondly, there is agoraphobia — often misinterpreted as being a fear of open spaces; this phobia presents itself as a marked fear for situations where escape or

† 100% CI: 0–8.
help may be impossible. Thirdly, there are specific phobias — phobias for distinct objects or situations, categorised into four more or less coherent groups. These groups comprise animal phobias, nature–type phobias, blood–injection–injury phobias and situational phobias. Since specific phobias can extend to virtually any situation or object known to man, a marginally helpful ‘other’ category is often added.

Broadly, a formal diagnosis of any phobia involves disproportionality, distress and impairment — that is, the fear has to be disproportionate to the threat. A strong fear of common household spiders is disproportionate to the threat; but being cast into a pit of vipers would cause even the most hardened herpetologist to lose his professional sangfroid (and possibly bowel control as well). The fear also has to cause distress and impairment in one’s daily functioning, and should provoke an immediate anxious response when exposed to the stimulus, or when the person anticipates exposure. Additionally, the patient should actually recognise that the fear is disproportionate, and the stimulus is either completely avoided, or endured with intense distress or anxiety. In practice, the distress of (anticipating) to be exposed to the feared stimulus will cause the patient to go to great lengths to avoid exposure, and avoidance alone can cause a great deal of disruption in daily activities and make life genuinely quite miserable for patients.

**Prevalence of Phobias**

Phobias are highly prevalent and are the most common type of anxiety disorders (Remes, Brayne, van der Linde, & Lafortune, 2016). In a large survey of the Dutch general population, the lifetime prevalence of social phobia was 10.9% for women and 7.7% for men (De Graaf, Ten Have, Van Gool, & Van Dorselaer, 2012). For specific phobias, this was 10.3% and 5.5%, respectively, and for agoraphobia this was 1.4% and 0.4% respectively. The majority of phobias are acquired before adulthood (Rapee & Spence, 2004), and result in a considerable burden for the patient, both in terms of impairment, disease burden and cost–of–illness (Mendlowicz & Stein, 2000; Stuhldreher et al., 2014). Apart from a considerable societal burden of anxiety disorders (see e.g., Andrews, Sanderson, Slade, & Issakidis, 2000; Fehm, Pelissolo, Furmark, &
Wittchen, 2005), the individual, cumulative and prolonged burden over time on a patient’s life can be significant. Often, the patient is forced to change his or her life in significant ways to accommodate avoidance strategies. For example, a patient with who avoids flying due to a phobia severely limits possibilities for going on holidays or travelling for work or visiting friends and families abroad. A person with a severe dog phobia (cynophobia) may avoid public places altogether, and a person with injection phobia (trypanophobia) may avoid medical procedures, often to the point of not seeking medical assistance in emergencies; whereas patients with dental phobia may encounter both medical and social problems due to dental issues.

TREATING PHOBIAS

Perhaps paradoxically, exposure to that what is feared is the best cure for phobias. The rationale of the treatment is that the patient faces the feared stimulus, suppresses the overwhelming urge to flee, and thus undergoes the learning experience that the unrealistic catastrophic outcomes anticipated by the patient (heart attack, death) do not happen. Although precise approaches and names have shifted throughout the previous 50 years, from desensitisation (Wolpe, 1954), to implosive therapy (Barrett, 1969), flooding (Foa, Blau, Prout, & Latimer, 1977) and mastery (Williams, Dooseman, Kleifield, & Kleinfield, 1984); the central argument or rationale of all of these therapies is exposure to the feared stimulus. This need not involve direct ‘in vivo’ contact with the stimulus, as indirect ‘in vitro’ exposure through images, video – or, more recently, virtual reality – also seems effective. Often, components of cognitive behavioural therapy (CBT) are added, which helps to remediate unhelpful thoughts and identify illogical catastrophic thoughts.

A number of meta–analyses and systematic reviews attest to the effectiveness of exposure treatment and CBT for phobias, including social phobia (individual and group therapy, Barkowski et al., 2016; Mayo–Wilson et al., 2014); agoraphobia (Sánchez–Meca, Rosa–Alcázar, Marín–Martínez, & Gómez–Conesa, 2010) and specific phobias (CHAPTER 3 of this dissertation).
However, it should be noted that social anxiety, agoraphobia and specific phobias among the least researched of the anxiety disorders when compared to post–traumatic stress syndrome (PTSD), obsessive–compulsive disorder (OCD), and generalised anxiety disorder (GAD; Boschen, 2008).

**EXPOSURE THERAPY**

Exposure therapy, with or without the elements of CBT, can be employed in a number of ways; its most popular application being gradual or graded exposure. In this form, the patient begins by formulating a number of grades, or steps, categorising fear–inducing situations from absolutely no fear up to complete terror. The patient then starts exposure to the feared situation at this first step, and then gradually moves up in this fear hierarchy. Crucially, the patient should practice at an anxiety level that is neither too high (causing the patient to abort the exposure and/or have a negative learning experience); nor too low (offering no learning experience at all). If all goes well, after the patient has experienced that anticipated catastrophic outcomes do not happen and that levels of fear and arousal decrease; a successful learning experience takes place and the patient is ready to progress to the next level. The exposure is repeated, until the patient confirms that fear levels have dropped and he or she is ready to advance to the next level in the fear hierarchy. While this graded exposure therapy takes place over repeated sessions (usually between 8–20) and over a longer time, for specific phobias, these sessions may even be compressed into a one–session treatment (Hood, Antony, Davis III, Ollendick, & Öst, 2012).

Despite the manifest impairment that was mentioned, for many patients it takes a long while to seek treatment. In phobias, if someone does not seek help within the first year, the delay between the onset of the disease and seeking treatment may be a decade or even more (Christiana et al., 2000; Green, Hunt, & Stain, 2012; Thompson, Issakidis, & Hunt, 2008). Some reasons for this delay are, e.g., a sense of wanting to solve the issues without help, being unsure where to seek help, stigma and financial difficulties (Christiana et al., 2000). Although reasons for not seeking treatment are individual and
complex, there is also a possibility that patients have become unable to distinguish their pathological fear from ‘regular’ fear – i.e., they have normalised their fears – or have become so effective at avoiding fearful situations that they virtually never encounter such situations. However, formal treatment with support and guidance from a licensed therapist is not strictly necessary in exposure treatment. The rationale and execution of exposure therapy are relatively simple, as essentially it hinges on the simple act of being exposed to a feared stimulus and resisting the temptation to flee, and thus internalising the absence of any negative outcomes. This makes exposure therapy suitable for self-application, and self-guided exposure therapy has been shown to be effective (Abramowitz, Moore, Braddock, & Harrington, 2009; Rapee, Abbott, Baillie, & Gaston, 2007). However, the counter-intuitive demands of guided self-help and facing a feared object or situation require very strong motivation and willpower from patients. Moreover, when avoidance behaviours become internalised, one’s life may be re-invented in such a way that daily routines have adapted seamlessly to avoidance behaviours, leading to little or no perceived benefit of performing exposure exercises.

When a patient finally does seek treatment for a phobia, in most Western countries the first gatekeeper to mental health treatment is the patient’s general practitioner (GP). Depending on the health care system, the GP may decide to refer the patient to mental health care, prescribe anxiolytic medication, or even to resort to a period of ‘watchful waiting’ to see if symptoms resolve themselves. When referred to routine mental healthcare, wait-lists are common and are dependent on therapist availability, type of treatment and other factors. Taking all of this into account, there are a considerable number of steps to go through when seeking professional help for phobias.

INTERNET-BASED TREATMENTS

In therapist-led exposure treatment, it is self-evident that exposure therapy with guidance from a licensed therapist involves a considerable investment of time and subsequently money from a highly trained — and commensurately paid — clinical specialist. Additionally, when compared to, e.g., CBT, the therapist’s role in exposure treatment is relatively trivial — often the therapist’s
main tasks are to motivate and guide the patient through the fear hierarchy, and to provide practical support rather than provide intensely therapeutic ‘talk therapy’. However, for many the presence of a therapist may give a sense of safety. Given these relatively simple therapist demands, in the late 1980s it was proposed that certain routine tasks in exposure therapy could be effectively automated and relegated to computer systems (Carr, Ghosh, & Marks, 1988), at least partly eliminating the need for intensive therapist supervision. An early example (Smith, Kirkby, Montgomery, & Daniels, 1997) used a home computer to good effect for treating spider–phobic patients, and other programmes quickly followed, demonstrating the possibility of reducing therapist demand (Kenwright, Liness, & Marks, 2001). Rather than distributing these programmes per patient on CD–ROMS, the quickly growing popularity of home Internet connections meant that these exposure programmes could be centrally distributed. Moreover, and even more importantly, it meant that a centrally located therapist could guide many patients from a distance over the Internet without being bound to geographical restrictions. In turn, patients could seek help regardless of their location and perform exposure exercises with some guidance, without having to travel and while being able to incorporate these exercises in their daily lives.

In the past 15–odd years, these online adaptations of guided self–help have reached relative maturity, and a number of Internet–based treatments for phobias have been developed and researched. The relative flexibility of these Internet–based treatments make them suitable for adaptive application in routine mental health care. The Internet–based treatment could, for example, be used instead, before, during or after face–to–face (FTF) treatment; depending on patient and therapist preferences and treatment context and conditions. These treatments, in their wide range of forms and applications, have made their way into a number of national treatment guidelines, including the United Kingdom’s NICE quality standard (National Institute for Health and Care Excellence, 2014) and the Dutch treatment guidelines (van Balkom et al., 2013). Although empirical evidence for the effectiveness of Internet–based treatments (or eMental Health) in severe phobias is mounting, the evidence has as yet been mostly
limited to self-selected samples from the general population. Moreover, the cost-effectiveness of these interventions in routine mental health care has not been investigated. Therefore, this dissertation describes the rationale, short-term effects and longer-term cost-effectiveness of offering this intervention to a population of patients awaiting face-to-face outpatient psychotherapy for phobias.

The ‘Phobias under Control’ intervention (de Neef & Cuijpers, 2007) was written as a self-help book based on standard exposure therapy, designed to help readers guide themselves through creating a fear hierarchy and gradually exposing themselves to predetermined objects and situations. To suit the demands of Dutch routine mental healthcare, this self-help intervention book was adapted and shortened by the authors to a format suitable for the Internet. This included adding guidance to help participants complete the intervention and shortening the intervention to five weeks to suit the average waiting-list length of the participating outpatient clinics. In the first week of the intervention, psycho-education and a treatment rationale was offered; additionally, motivation for treatment was assessed. In the second week, patients were asked to build a fear hierarchy and to start planning their exposure exercises. The final three weeks were for exposure exercises, with a short introduction to the upcoming face-to-face psychotherapy in week five. Guidance to the intervention was provided once a week by specially trained master’s level students from the department of psychology, providing weekly, non-therapeutic feedback meant specifically to coach the patients through the intervention. A detailed description of the intervention content and exercises is given in CHAPTER 3.

OVERALL SUMMARY & AIM

In summary, this dissertation describes the (cost)-effectiveness of offering a web-based, guided self-help programme to phobic outpatients on a waiting list to receive F2F psychotherapy. In particular, this thesis seeks to shed light on the following research questions. Firstly, we investigate whether there is clinical benefit from offering wait-listed patients an Internet-based guided self-help programme. Secondly, we seek to establish whether offering the
intervention is successful in lowering the total number of FtF sessions used and thereby making the 12–month treatment process more cost–efficient. Moreover, it investigates the role of premature dropout from the intervention.

OVERVIEW OF CHAPTERS

In this dissertation, chapter 2 is a meta–analytic overview of the efficacy of psychological treatments for specific phobias. Chapter 3 describes the protocol of the RCT of Phobias under Control, explaining its rationale, methods and instruments. Chapter 4 reports on the short–term effects of Phobias under Control RCT described in chapter 3, that is to say, its clinical effects before the sample received FtF psychotherapy, while chapter 5 addresses the main research question of this dissertation; the cost–effectiveness and longer–term effects of the intervention at 12–month follow–up. In chapter 6 we touch upon the poignant issue of non–adherence to the intervention; and chapter 7 identifies and describes some pitfalls and issues encountered during six years of working intensively in the field of eMental Health. Finally, chapter 8 seeks to discuss, integrate, interpret and give a general overview of the findings of the previous chapters. This is annotated with some concluding observations on the scientific, clinical and societal relevance and limitations of this dissertation and recommendations for future research.
REFERENCES


