

Non-Pharmacologic Treatments for Fear of Flying

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Abstract

The purpose of the present survey was to review the important Non-pharmacologic treatments for fear of flying up to the present. This study is in the same way as some studies. Accordingly, some Non-pharmacologic treatments for fear of flying were assessed through this systematic review article. The general conclusion from the information provided by the former studies, shows that a growing number of treatment facilities offer treatment programs for fear of flying, including combined treatment, Hypnotherapy, EMDR, Relaxation, information Providing, Cognitive-behavioral treatment, cognitive therapy, exposure therapy, Computer-based exposure therapies, Implosion therapy, Flooding, Systematic desensitization and Psychodynamic therapy. Nevertheless, little is known about which specific method or element of treatment programs works best; In addition, Psychological therapy should be employed under unique circumstances and according to the needs of individuals rather than applying identical treatment packages to any case.

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Introduction

Flight has become accumulatively common in industrialized countries, even so not all passengers enjoy flying [1]. From the advent of human beings, people have been looking up at the immeasurable stars and planets of the sky. The crucial question has always been how to conquer the distance, how to reach the sky without being damaged or killed and land safely on the ground. At the present, although commercial flights have become one of the safest forms of transport, they are still exciting and anxiety provoking for many people. Fear of flying is a matter of discussion, because an estimated 10-40% of adults within society show type of fear in reaction to air travel [2].

There is a difference between term "fear of flying" and problems arising from anxiety disorders, phobic reactions, Traumatic stress exhaustion, psychosis and motivational changes. Fear is a set of acute emotional manifestations experienced by people encountering a dangerous situation. This factual and special danger exists in external reality. Fear can have some adaptive function when it remains limited and controlled, since it forewarns the organism of a danger and provokes its state of Alertness. In phobic FOF, the person counts the fear as irrational, nevertheless tries to avoid the situation. Phobic reactions might be due to the personality predispositions, maladaptive training and stress conditioning patterns [3].

Fear of flying (air travel phobia, flight phobia, and aerophobia) is categorized in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 1994) as a specific phobia, characterized by a marked, persistent, excessive

fear which is precipitated by the experience or immediate prospect of air travel [4].

The most tangible behavioral reaction to the fear of flying is avoidance. It is represented in one of three ways: the person who (a) will not fly; (b) will fly under an absolutely urgent condition or (c) will fly when required but shows anxious reflections when doing so. Anxious flyers may exhibit a set of safety behaviors such as insisting on having a specific seat (aisle or exit seats for 'quick escapes' or window seats to facilitate avoiding interaction with others). They may interrogate an airline staff about the weather, delays, technical problems or the pilot's qualifications. In addition, hostile or aggressive behavior among some travelers may also be fuelled by anxiety. There are also some evidences that fearful flyers have an increased aspiration to use medication and alcohol when flying to get rid of distressing symptoms and perhaps to anaesthetize their anxious feelings [5].

Cognitive responses to flying comprise a fear of crashing, death, mutilation, loss of self-control and social embarrassment. Those who have specific phobia of flying are afraid of external threats such as crashing, death and heights. The people whose fear of flying is also accompanied by panic disorder with agoraphobia (PDA) are inclined to get afraid of the somatic symptoms of anxiety. Other cognitive responses to air travel revolves around separation anxiety, rumination on recent traumatic or stressful incidents or media coverage. There is also some evidence that mothers with young children may be subject to catastrophic thoughts on the consequences to their children if the mother were to die in an accident while flying [6].



Physiological reactions might involve combinations of increased heart beat and blood pressure, hyperventilation, shaking or gastric upset irrespective of the nature of the cognitive response. A number of researches measure fearful responses to flight in terms of heart rate variability and skin resistance. Reported physiological responses also include panic attacks. Estimate of the prevalence of panic attacks while flying ranges from 37% to 82% of passengers with a diagnosis of specific phobia of flying. In addition to these diagnostic groups, the literature reports that as many as 46% of individuals with specific phobia of flying display additional specific phobias [6].

There are several theories about how fear of flying develops. One theory suggests that a bad experience, somehow related to flying, could be the source of fear: Maybe you were on a plane that experienced violent turbulence, or had a haunting nightmare about a plane crash. The bad feelings originated from that experience become associated with things like the sound of the engines or the feeling of taking off. These associations turn into triggers that spark the same bad feelings over and over. Another theory says that we learn fear from others. Because a parent or a sibling seems afraid or upset, we naturally pick up on their feelings. Pretty soon, we no longer need anyone else. Just by being in the situation, we become upset. A third theory speculates that some people develop a fear of flying simply because they have the wrong information about how safe it is. In the end, they genuinely begin to believe that something bad is bound to happen to them while they're in the air [7].

Fear of flying can be the manifestation of one or more other phobias, such as claustrophobia or social phobia. It can also be the effect of generalization of one or more natural environment phobias, such as fear of heights, falling, storms, water, instability, etc. Determinants, that are also noteworthy, are fear of loss of control and a high need to have control over the situation. Fear of flying is a heterogeneous phenomenon [8]. That is why a multimodal treatment program sounds appropriate to help patients who have different mechanisms and backgrounds that underlie their fear of flying [1].

There has been a substantial growth in the quantity of published literature on fear of flying since 1990. Simultaneously, demand for and supply of psychological treatment as to fear of flying has increased [5, 6]. Fear of flying, whether experienced to a mild, moderate or high degree, usually influences functioning in one or more areas of life, e.g. professional, social and family life. It may also affect marital or relationship satisfaction as fear of flying hampers or restricts a partner's freedom of movement and shared activities. Hence, it is not surprising that demand for treatment as to fear of flying is growing [9]. Thus, the purpose of the present review study was to determine which Non-pharmacologic treatments have been used for fear of flying up to now.

Methods

In this systematic review, the initial selection of the related literature, was made out of nearly one hundred scientific database searches from January 1923 until November

2012, in order to guarantee that the most recent researches were identified. Some of databases used for this study were Google, PubMed, science direct, Proquest, springer, sage and Ebsco. In order to get the maximum achievement to the highly related issues, each of these databases was searched using the keywords or phrases 'fear of flying', 'flight phobia', 'flight aviophobia' and 'flying'. Among the numerous scientific articles dealing with this issue, these salient ones should be mentioned as the main studies which have rigorously been reviewed; The psychology of fear of flying (part II): A critical evaluation of current perspectives on approaches to treatment' by Oakes & Bor [5,6], 'Fear of flying: A review' by Joseph, (2006), 'Psychological factors in airline passenger and crew behavior: A clinical overview' by Bor [9], 'Fear of flying treatment programs for passengers: an international update' by Lucas[10], 'Psychological factors in airline passenger and crew behavior: A clinical overview. Travel Medicine and Infectious Disease' by Bor, R., [9], 'two treatments for fear of flying compared: Cognitive behavioral therapy combined with systematic desensitization or eye movement desensitization and reprocessing (EMDR). Aviation Psychology and Applied Human Factors' by Triscari et al [10].

Results

The development of modern psychological approaches to fear of flying follows the evolutionary path of etiological perspectives. The earliest psychological literature on fear of flying came out simultaneous with the First World War and emphasized the use of psychoanalytic techniques with military aircrew. These early interventions were not, however, subjected to close scrutiny in the context of clinical trials. In 1950s, parallel to the development of psychotherapy as a whole, the emphasis on studies of fear of flying switched to a psychoanalytic perspective. The love and fear of flying were seen as closely related and offered a host of symbols and unconscious processes to the therapist keen on underlying psychodynamics. This was not the subject of widespread empirical research. There was, however, an extensive study of aircrew diagnosed as suffering from aero-neurosis as described above from this perspective. Although the psychoanalytic interpretations of this study's findings have not withstood more recent evidence based explanations of anxiety, it does provide possibly the first detailed description of the phenomenon. As of 1970s onwards, passenger fear of flying became a major center of attention among curious psychologists. Meanwhile, behavioral, and subsequently cognitive perspectives were first developed for conceptualizing and treating anxiety disorders generally. Cognitive behavioral perspectives have dominated the language of published research which took fear of flying into account in 1970. This reflects the implementation of empirically based cognitive behavioral therapy as an intervention by those treating fearful flyers [5, 6]. From 1960 onwards, a combination of behavioral and cognitive techniques became dominant in the literature which concentrated on anxiety disorders and most often seemed as a psychological intervention in published researches by 1980. The language of studies which examine

fear of flying is almost exclusively CBT which explains the cognitive behavioral focus of this review. In North America and Europe, where the majority of researches have been carried out, individuals who are afraid of flying have access to a bewildering array of dedicated treatment facilities and programs. The researches have been done by or in association with airlines through courses presented to groups rather than individuals. Many, but not all, necessitate participation of a psychologist in the program. There are a few clinics which specialize in psychological approaches to anxiety disorders including fear of flying [5,6]. Non-pharmacologic or psychological treatment for fear of flying is as follows:

1. Psychodynamic therapy: Prior to the late 1960s, the treatment of choice was predominantly traditional, long-term explorative psychodynamic therapy, with a focus on unconscious causes. A fear of flying within this theoretical model was regarded as a symptom of 'deeper' problems, such as a fear of loss of control, hostility towards a parent figure or even a symptom of a fear of attachment. While these and other explanations might appear compelling, psychodynamic therapy and group analytic therapy have a low success rate (approximately 18%) for fear of flying and are no longer considered as the treatment of choice for this problem [11].

2. Systematic desensitization: As Nagamo (1988) believes, Systematic desensitization features the pairing of a hierarchy of images of the feared object or activity with relaxation techniques. When systematic desensitization is applied to fear of flying, clients are gradually helped in imagery from visualizing going to an airport, entering the aircraft, strapping in, taking off, and gaining altitude, cruising above the clouds, descending, and landing. At each stage, relaxation is induced until that particular activity can be contemplated in imagery without anxiety. When successful, clients are able to visualize flying without experiencing fear [12]. Systematic desensitization has demonstrated its efficiency in the treatment of Aviophobia [13, 14].

3. Flooding: Flooding is a type of exposure in which feared stimuli are presented either via imagery or in-vivo (real life) for prolonged periods of time. The purpose of flooding is to maximize anxiety until elimination occurs. Notwithstanding the aversive nature of treatment, results of flooding, particularly on symptoms of fear of flying, have proved to be efficacious [13-16].

4. Implosion therapy: Stampfl et al [17] utilized imagery in implosive therapy. During implosion, patients are required to "play act" and "lose themselves in vivid scenes replete with dramatically presented fear stimuli. The patient is told to portray emotions as if the client was actually experiencing the phobic scene. The therapist tries to elicit an extended period of maximum anxiety until the patient reports significant decline in fear [18]. In the implosion therapy approach, clients are directly confronted with images of their fears unaccompanied by positive or negative reinforcement. A series of the most frightening and horrible consequences are sequentially presented, as described by Eaglesberg [18]. They include such scenes as crashing on take-off, plummeting in a steep desert into the ground,

looking out of the window and seeing an engine fall off, a midair collision with another airplane, fire and smoke on board, and spinning out of control into a shark-infested sea [12].

5. Imaginable exposure: Imagery is the "figment of the psychologist's terminology," said Watson [20], the archetypical mechanistic behaviorist [21]. Disagreed, saying that private events including images, thoughts, and emotions cannot be causal of overt behavior. Nonetheless, Skinner [21] said that empirical science could study overt reactions to covert events, such as facial expressions of emotion or physiological reactions to internal states. Exposure to repulsive imagery has been used since the advent of behavior therapies by Salter [22], Wolpe [23], and Stampfl and Levis [17]. In imagination exposure, you still expose yourself to all the fearsome parts of flying – but you do it in your mind. Since most of us cannot imagine an experience with all the detail and clarity of actually being there, this treatment takes a little longer [18]. Still it works. As with in-vivo exposure, you begin imagination exposure by creating a list of all the steps involved in flying, and then imagine yourself doing each step. All the sights (baggage handlers loading luggage into the plane), smells (dry-roasted peanuts in a foil bag) and sounds ("Excuse me, you're in my seat") should be imagined in order to make the experience feel as real as possible. This is done a multitude of times within several days, so that the elements triggering your fear no longer bother you as much [7].

6. Vivo exposure: Vivo exposure is a specific form of exposure therapy in which the individual is exposed to their real feared stimuli often in true world environments' [24].

7. Graded Exposure: Also called graded in-vivo exposure, this therapy has two stages which are completed under a therapist's care: 1. Rank all the aspects of flying that bother you, from the least to the scariest, and 2. Strive to make yourself do each of these things, starting with the least scary and progressing to the most terrifying. For example: Call the airline for flight information, every day for a week, Drive to the airport, and then go home, Drive to the airport, park and watch planes take off and land, over and over and over, Sit at the gate, along with other passengers waiting to board, as long as you can (at least 30 minutes), then go home, Take a short nap [25].

8. Intense Exposure: Also called intense in-vivo exposure, this treatment urges you to rank your fears, but to then skip the easy stuff (gradually confronting each level) and go directly to the thing that scares you the most. You repeatedly expose yourself to this horrifying level until the fear disappears or is endurable. Either kind of in-vivo exposure is probably the quickest way to treat most phobias, but it can be a little impractical for flying fears – unless you happen to have a plane at your disposal to practice on [7].

9. Computer-based exposure therapies: Evidence is increasing that two modalities of computer-based exposure therapies—virtual reality and computer-aided psychotherapy—are influential in treating anxiety disorders, including fear of flying. The main differences between VR and other computer-based treatments are that (a) most of the

VR treatments delegate few treatment tasks to the system with few exceptions like [26] use of VR in a completely self-administered Internet-based treatment for animal phobia, as do computer aided-psychotherapy, and (b) VR has been mostly employed as a device for exposure therapy, called VR exposure therapy (VRET), while computer-aided psychotherapy treatments have been used in order to deliver several therapeutic strategies [27].

10. The Computer-Assisted Fear of Flying Treatment (CAFFT): concentrating on fear of flying, Bornas and colleagues developed the computer-assisted fear of flying treatment [28-30], a system that provides exposure to photos and accompanying sounds of flying situations on a personal computer with a standard screen and headphones. In two controlled experiments [28-30], this computer-aided exposure (CAE) system was shown to be effective in diminishing fear of flying, and CAE alone turned out to have some benefits in terms of efficiency over other multi-component programs, suggesting that CAE could save time and resources compared to regular face-to-face treatments for fear of flying, but it has not yet been tested as a true self-administered treatment [26].

11. Virtual reality exposure: Virtual Reality Exposure Therapy (VRET), a medium through which a head-mounted display and other high tech equipment allow patients to see an airport and airport related scenes using up to five human senses. This environment attempts to create a sense of presence within a three dimensional computer generated world [14]. Three conditions should be met for VRET to be effective. First, participants need to feel present in the virtual environment to be able to experience the environment fully as a place visited, instead of a film seen [31]. Second, the virtual environment ought to be able to elicit emotions [32-34]; otherwise, extinction will not take place. Eventually, extinction and co-occurring cognitive changes have to be generalized to real situations so that real-life situations will not be avoided any longer or will be tolerated with less anxiety. VRET is conducted like any other form of graded exposure therapy. Patients are exposed to those stimuli that elicit fear. To give patients a gradual and optimal exposure treatment, patients have to measure their anxiety regularly during the exposure session by means of subjective units of discomfort (SUDS; 0–10 or 0–100). As Krijn et al [35] holds, the therapist's remarks are roughly similar to what would be expected for conventional in vivo exposure. Generally speaking, patients are educated during treatment to expose themselves to the anxiety-provoking situations by degrees. After anxiety has been mitigated as measured by a relatively low SUD, patients are persuaded to take a next step, which provokes more anxiety (By way of illustration, move up one floor, take off by airplane, walk closer to the spider, etc.). In general, VRET draws on only exposure techniques and does not include persuasions, cognitive interventions, or relaxation [35]. Virtual reality exposure therapy (VRET) is a transformation of behavior therapy and an alternative to in vivo. VRET could be an effective component in the treatment of fear of flying. Particularly the controlled studies by Rothbaum et al., [36] suggest that VRET is effective. Furthermore, Krijn [27] maintains that

in the treatment of fear of flying, the merits of VRET over standard exposure therapy seem enormous. It is highly cost effective, components of the flight can be repeated endlessly in the therapist office, and different weather conditions can be brought in milliseconds [37]. For more definite conclusions to be drawn, studies comparing different treatment forms have to include comparable treatment conditions concerning the number of sessions, the length of the sessions, and the environments used (e.g., virtual worlds replicating in vivo situations [27].

12. Cognitive therapy

Cognitive factors are regarded as an important component of anxiety, and cognitive therapy has generally achieved wide popularity in the treatment of anxiety disorders. Phobic beliefs, such as an irrational fear of the potential Danger of the stimulus, also play a role in specific phobia [38], but cognitive therapy has only recently been recognized as a possible treatment modality. The focus of cognitive therapy is cognitive restructuring in which distorted or irrational thoughts that are linked with the feared stimulus or situation are modified, with a Resulting decrease in anxiety and avoidance. For instance, cognitive therapy would attempt to help a flying phobic Reevaluate the probability of a plane crash given real data. For flying phobia, cognitive therapy produced a better outcome than no-treatment controls in one study [39] but not another [40]. In the study by Capafons et al. [39], subjects treated with cognitive therapy outdid controls on all self-report measures of anxiety (pb0.001) and in some physiological variables (heart rate, muscle tension) (pb0.05) during viewing of a videotape of a flight. In Muhlberger et al.'s [40] study (previously mentioned in virtual reality section) cognitive therapy was not better than the wait-list control condition based on self-report measures.

13. Cognitive-behavioral treatment

Successful treatment of fear of flying has been reported in studies using a range of cognitive-behavioral techniques, [41-43]. The techniques are cognitive restructuring, thought stopping, coaching in cognitive coping skills, identifying and 'talking back to' negative thoughts; Although there is clear evidence that CBT provides short-term returns for FOF and some evidence that these returns are enduring, the components underlying these enduring effects are unclear. Skill acquisition has been recognized as one important component of CBT treatment, alongside changes in cognition, enhanced coping, and exposure [44]. CBT's emphasis on skill learning is based on cognitive theories of self-regulation and motivation, and on the assumption that clients are problem-solvers and self-motivators [45]. A general speculation of CBT is that "prior learning is currently having maladaptive consequences, and that the purpose of therapy is lowering distress or unwanted behavior by undoing this learning or [45]. Presumably, the skills learned in treatment play apart in adaptive learning experiences, as well as the maintenance of such adaptive learning. Thus, CBT therapists intentionally work to build skills among their clients by emphasizing active participation and psycho education so that clients may become their own therapist once treatment is concluded [46-47]. The purpose is for clients to develop

transferable skills which can be used to tackle new problems arising after the end of therapy [48], and increase the probability that they will have effective tools to manage emotional responses to stress in the future [46, 49]. CBT is most effective when three factors are covered with the patient: 1. Information is offered which describes the fundamentals of aerodynamics, principles of flight and safety issues in aviation. 2. The person is helped to identify the signs and symptoms of anxiety and panic, and to handle them as a first step to ultimately overcoming them, and 3. Graded exposure exercises are carried out with the patient to help desensitize him or her to any annoying sensations or fears they may have as for air travel. These exercises can be taken on actual flight or under simulated conditions, employing virtual reality technology [50].

14. Providing information: the Programs which describe this technique most often include:

14.1. Information from trusted and reliable sources on commercial aviation, including: safety, aerodynamics, engineering and maintenance, the sources of those in-flight noises and movements, weather and controlled airspace [51]. About safety in the airline industry, do not become argumentative with the skeptical patient if appropriate, provide information about specific aspect of aviation (e.g. aerodynamics, principles of flight, air traffic control) or refer them to a flying school for this information [11].

14.2. Information on the physiology of anxiety and panic, including: reassurance that the unpleasant sensations experienced before and during flights are normal reactions that will not harm them. These normal responses are exaggerated by notions of impending calamity such 'scary' events can be clarified using accurate information about aviation and human physiology [37]. Providing information is mostly often combined with other treatment constituents and interventions which embrace its uses, have regularly reported declines in self-reported anxiety regarding air travel and where measured, showed a growth in flying activity [52].

14.3. Self-help guides and bibliotherapy: The effectiveness of bibliotherapy as standalone treatment has been examined for specific phobias in general, even so has not yet been investigated for fear of flying [53]. Found that bibliotherapy by reading and practicing via a self-help guide can be influential in treating specific phobias. However, the studies reviewed by Newman et al, 2003[53] differ widely in the amount of therapist contact(s) and the location where self-help was administered. In three of the four studies that found self-help to be identical to therapist-directed therapy, the self-help interventions were administered in the lab of the investigator. Still, self-administration at home is much less effective in terms of clinical significant change as compared to lab administered self-help, 10% versus 63% [54].

15. Relaxation: Relaxation training is an element of many programs explained in published research and has also been assessed as a stand-alone intervention. Forms of relaxation training evaluated include simple breathing techniques, guided imagination and progressive muscle relaxation. Practice may occur in cabin mock ups or stationary aircraft, often as preparation for exposure [41]. Studies that

evaluate multi-component programs including relaxation training, constantly report treatment profits in terms of reduced self-reported anxiety. They do not seek to isolate the gains attributable to it. Used as a stand-alone intervention, relaxation training has been indicated to be most effective when consonant to participants' anxious response and to produce similar treatment returns to exposure techniques such as systematic desensitization based on visual images [5, 6].

16. Eye Movement Desensitization and Reprocessing (EMDR): The main goal in this medication paradigm is to process the memories of the initial events that set the pathology in motion, rather than elimination of the conditioned reactions through a strategy of gradual or prolonged exposures to the feared stimuli. EMDR treatment of specific phobia is on the basis of a standard three-stage protocol. Specifically, after identifying the pertinent targets, a three-pronged approach of past, present, and future is used that incorporates the following steps: (a) alleviating the distress with regard to one or more old memories, (b) reconditioning the effects of present stimuli that trigger the fear response, and (c) preparing the client for future confrontations with the conditioned stimuli[55]. Since its development, the application of EMDR has proliferated to different disorders. A single session utilizing the EMDR approach applied to the treatment of non-traumatic fear of flying is presented. For this study, the EMDR process was adapted to satisfy the needs of the client. The purpose of this study is to provide an example of the in-flight usage of a single session of EMDR to non-traumatic or small "t" fear of flying. The case of a client successfully treated with in-flight EMDR is presented. Pre-September 11 and post-September 11 follow-up with the client is also documented [50].

Hypnotherapy: Hypnotherapy is the application of hypnotic techniques to bring about a "trance" or an altered state of consciousness or attention which raises the person's susceptibility to experience various changes in sensation, perception, cognition or control over motor behavior [56]. Limited session brief, focused, selective hypnotherapy can however cure incapacitating fear, disturbed conditioned reactions and avoidance behavior [57]. Some patients were treated by group desensitization and autohypnotic training over a term of six weeks for flight phobia, with a highly significant reduction of fear for the group. Anticipation of any gain connected to fear reduction [10].

Integrated Treatment: Some researches combined two treatment and studied the effect of results; for example, a study aimed to test an Integrated treatment with eye movement desensitization and reprocessing (EMDR) and cognitive behavioral therapy (CBT), compared with CBT merged with systematic desensitization, in cutting fear of flying, outcomes showed the efficacy of each model with a significant advancement in the examined psychological outcomes in both groups [10].

Conclusion

The primary goal of this study was to attain detailed insight into the various approaches of the Non-pharmacologic treatment concerning fear of flying. The

overall conclusion from the information provided by the experts and corroborated by the literature is in line with the studies [5, 6, 49] that fear of flying is a disorder that can be effectively treated. The urge to generate different therapeutic forms for a single problem works on the evidence that people suffering from the same sort of psychological disorder, reflect in a very different way when the same psychological technique is applied to them. Psychological therapy should be adapted to the unique circumstances and needs of the individual, rather than applying the same treatment package to every case. It is necessary to be aware that fear of flying might signal other psychological problems in an individual's life; hence a thorough and detailed evaluation of the patient's mental health should always be made. Review studies suggest that a rising number of treatment facilities offer treatment packages for fear of flying, nonetheless, little is recognized on which specific method or elements of treatment forms work best.

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