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Anxiety in older adults: prevalence and low-threshold psychological interventions

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GENERAL INTRODUCTION

1. An unprecedented demographic shift

The global population is ageing at a rapid pace: in virtually all countries, the proportion of older adults and life expectancy are rising. In 2020, 18.5% of the world's population was aged 55 years and over. It is projected that by 2035, people aged 55 years and older will outnumber children under 15. Worldwide, life expectancy has increased from 66.8 years in 2000 to 73.4 years in 2019 [1]. In the Netherlands, the proportion of the population aged 55 years and over rose from 19% in 1970, to 22% in 1990 and 33% in 2019 [2]. Life expectancy in the Netherlands increased from 78 to 82 years between 2000 and 2019 [2].

The rapid increase in longevity and the proportion of older adults in the population impacts all facets of society. The key challenge for modern societies is to ensure that this demographic shift does not translate into an increased number of people facing extended periods of illness, disability and dependency, but instead to older people experiencing longer periods of health and well-being. To achieve this, it is important to understand the nature of growing old and the specific needs and abilities of older adults. We should recognize that older adults face particular challenges, not only related to their physical health but also related to their mental health and well-being.

In 2017, the World Health Organization stated that mental health in older adults is an under-identified and under-researched topic [3]. To understand the (future) requirements and challenges for society in general and mental health care practice in particular, research into the prevalence, nature, detection and treatment of mental health problems in the older population should be highly prioritized. This doctoral thesis aims to contribute to this endeavor by examining questions related to anxiety symptoms in later life. Anxiety is one of the most prevalent and disabling mental health conditions in older adults [4-7]. The current thesis has two aims. Firstly, it focuses on currently unresolved questions related to the prevalence of anxiety in later life. Secondly, it contains an elaborate comparative evaluation of two psychological interventions for older adults with anxiety symptoms.

1.1 How old is an 'older adult'?

Ageing is a continuous and gradual natural process. People do not become 'old' at any specific age. Age in years (also called chronological age) reflects only one dimension of ageing. Other dimensions are biological aging (related to declines in physical functioning), psychological/subjective ageing (how old or young one feels) and social ageing (changes in a person's roles and relationships) [3]. These different

aspects of ageing are not necessarily synchronous: some people who are 75 years old can feel and act much younger than some 55-year-olds.

Clearly, using a cut-off age to define 'old(er)' is always arbitrary to some extent. In the literature on (anxiety) in older adults, the cut-off for defining 'older' often differs between studies. Cut-offs of 55, 60 and 65 years old are the most common. In this doctoral thesis we use the cut-off of 55, as this low cut-off is most inclusive; it has less risk of excluding people based on their chronological age, who might be considered 'old(er)' on the other domains of ageing.

2. Prevalence of anxiety in later life

Epidemiological studies have repeatedly shown that although the prevalence of anxiety disorders (and most other mental health problems) declines with age, older adults still commonly suffer from anxiety disorders [4-9]. Prevalence estimates vary widely between studies, due to methodological differences: in their review article on anxiety disorders in older adults (defined as individuals aged 55 years and over), Wolitzky-Taylor and colleagues showed that reported prevalence estimates for anxiety disorders in older adults range from 3.2% to 14.2% [10].

Regarding the prevalence of specific anxiety disorders, a meta-analysis of prevalence studies in older adults in Western countries showed that specific phobia (SP) and generalized anxiety disorder (GAD) are most prevalent, with estimates of respectively 4.52% and 2.30% [11]. Pooled estimates for the other anxiety disorders were 1.68% for posttraumatic stress disorder (PTSD), 1.31% for social anxiety disorder (SAD), 0.90% for obsessive compulsive disorder (OCD), 0.88% for panic disorder and 0.53% for agoraphobia [11].

While the overall prevalence of anxiety disorders in older adults has been studied relatively frequently, epidemiological studies have not often focused on more complex and nuanced issues surrounding the prevalence of anxiety in later. Using a systematic review and meta-analysis of the literature, the current thesis aims to address two such issues: the prevalence of *subthreshold* anxiety in later life and differences in prevalence rates for anxiety disorders and subthreshold anxiety between different age groups of older adults.

2.1. Subthreshold anxiety in older adults

One of the most lively debates surrounding the topic of anxiety in older adults concerns the question whether adequate assessment of anxiety in later life requires

adapted/different diagnostic measures and methods. Clinical observations and empirical studies indicate that anxiety may manifest differently in older adults than in younger people and that common diagnostic assessments that have been developed with younger populations may therefore lack specificity in older adults [12, 13]. For example, compared to younger adults, older adults with either GAD or panic disorder tend to more strongly emphasize their physical complaints such as pain, tiredness, restlessness, lack of concentration, irritability, and sleep problems [14]. Diagnostic assessment is also complicated because older adults are more sensitive to stigma surrounding psychological symptoms and less accurate in identifying these symptoms [15-17]. This may lead to a reluctance and/or inability to adequately report on their mental health. Furthermore, impairment in work or social relationships (a criterion for the diagnosis of all DSM anxiety disorders) may not be readily apparent if an older person is retired and/or socially isolated [16,18]. Related to this, anxiety related avoidance behavior in older adults might be less noticeable or interpreted as less problematic, because as people get older, societal expectations regarding active living commonly decrease [19]. Lastly, both clinicians and older adults themselves might hold 'ageist' views that hinder the detection of anxiety. They might interpret anxiety symptoms as a part of the normal aging process or merely a byproduct of cognitive or physical conditions [13, 19].

All these factors can lead to a structural underdiagnosing of anxiety disorders in older adults. In support of this notion, Grenier et al. showed that the prevalence rate for anxiety problems in older adults was 26.2% when subthreshold anxiety was included, compared to 5.6% for DSM defined anxiety disorders only [20]. Subthreshold anxiety can be broadly defined as the presence of elevated levels of anxiety, without the symptomatology meeting all criteria for a full-blown anxiety disorder [21]. Findings like those from Grenier et al. suggest that anxiety in later life might mainly be a subthreshold phenomenon, and that a strict focus on DSM anxiety disorders does not do justice to the true prevalence and nature of the problem. The clinical relevance of subthreshold anxiety has also been demonstrated: studies found anxiety symptoms in later life to be associated with limited physical and social activities, decreased well-being, chronic physical problems, comorbid depressive complaints and increased health services utilization, irrespective of the anxiety symptoms meeting diagnostic criteria for an anxiety disorder or not [20, 22]. Clearly, to improve the understanding, assessment and treatment of anxiety in later life, the prevalence and nature of subthreshold anxiety should receive more attention.

2.2. Prevalence rates throughout later life

Another intricate and understudied issue related to anxiety in older adults concerns changes in the prevalence of anxiety throughout the later life span. Older adulthood can span over four decades, but we currently have a very limited understanding of how the prevalence of anxiety evolves throughout this period. Epidemiological studies commonly report a single prevalence estimate for a sample of older adults with an age range spanning over 30 years. Such an approach disregards differences between age groups of older adults, while it is plausible that the nature and prevalence of anxiety changes as people move throughout later life and undergo physical, cognitive and social changes. To truly comprehend the phenomenon of anxiety in later life, it is important to not consider older adults as a homogenous group. Instead, we should aim to unravel how prevalence rates of (different types of) anxiety vary between subgroups of older adults with different demographic and clinical characteristic. Such information can improve mental health care for older adults, by increasing clinician's awareness of factors that are relevant to anxiety in later life, thereby facilitating its detection and treatment.

2.3. This doctoral thesis

This thesis aims to address and answer two questions related to the prevalence of anxiety in later life, using a systematic review and meta-analysis of epidemiological studies in older adults. First, we will pool prevalence rates of subthreshold anxiety in older adults and see how these rates compare to the prevalence ratesof full-blown anxiety disorders in the older population. This comparison can provide insight into whether the current body of literature lends support to the claim that anxiety in later life is predominantly a subthreshold phenomenon. Secondly, we will examine how prevalence estimates for anxiety disorders and subthreshold anxiety differ between age groups of older adults. By systematically reviewing the currently available studies on the prevalence of anxiety in later life, we also aim to identify gaps and shortcomings in the literature and make recommendations for future research.

3. Psychological treatment of anxiety in later life

3.1. Previous research

Anxiety in older adults is a distressing, disabling and often chronic condition [23]. Also on a subthreshold level it is associated with an increased risk for multiple physical

conditions and cognitive decline, decreased subjective well-being and quality of life, and limitations in social functioning and self-care [24-30]. Unfortunately, currently a large proportion of anxious older adults do not receive adequate psychological care. There is clear evidence from multiple Western countries that older adults in general are less likely to seek, be referred for, and receive psychological treatment for mental health issues [31-33]. Given the increasing number of older adults with anxiety and the disabling nature of this mental health problem, rigorous evaluation and dissemination of evidence-based psychological treatment for later life anxiety should be a public health priority.

So far, most of the trials into psychological treatments for anxiety symptoms and disorders in later life have evaluated face-to-face cognitive behavioral therapy (CBT). Meta-analyses of these trials concluded that face-to-face CBT is effective in reducing the severity of anxiety symptoms in older adults [34-37] (N.B., these three meta-analyses used different age-cut-offs of respectively 55, 60 and 65 years). Multiple clinical guidelines have adopted these conclusions and recommend CBT as the first-choice psychological treatment of anxiety in older adults [e.g., 38-40]. However, caution is warranted in interpreting the meta-analytic findings, because the literature as a whole has several shortcomings: sample sizes are small, control groups are often absent or consist of wait-list conditions and long-term follow-up measurements are largely missing. Furthermore, the studies are rather homogeneous with regard to the specific type of anxiety they target (the majority focuses on the treatment of full-blown GAD) and with regard to the treatment setting (most are conducted in either an academic setting or a specialized mental health care setting). Also, meta-analyses showed that effect sizes in favor of CBT are small when CBT is compared to an active control condition and some evidence suggests that CBT might be less effective in older adults than in younger adults [41]. This indicates that it is worth investigating other treatment approaches. Another difficulty concerns the fact that traditional face-to-face CBT is relatively time and cost-intensive. Considering the high prevalence of anxiety symptoms in older adults and the rise in life expectancy, even affluent societies cannot easily afford to provide all anxious older adults with this type of treatment. It is therefore worth investigating the effectiveness of less expensive (e.g., briefer or with less therapist time) psychological interventions.

Concluding, while numerous important trials into the psychological treatment of anxiety in later life have been conducted over the last decades, there remains a significant amount of work to be done in this field of study. Clinical trials investigating

innovative, cost-reducing treatments, compared to proper active control conditions, in more diverse settings and in larger, more heterogeneous samples can move the field forward. In the following sections, we describe three ways of innovating evidence-based treatment for anxiety in later life, focusing respectively on treatment approach, treatment setting and treatment delivery format.

3.2. Treatment approach: Acceptance and Commitment Therapy

As stated, CBT is currently the dominant empirically validated psychological treatment for anxiety symptoms and disorders in later life, as it is for anxiety in general adult samples. In its broadest sense, CBT refers to a family of empirically evaluated psychological interventions that target cognitive and behavioral processes in order to ameliorate psychological distress [42]. The most widely used and investigated form of CBT is based on the cognitive model developed by Beck et al [43]. According to this model a successful CBT treatment for anxiety results in a new repertoire of functional thoughts and behaviors that compete with the dysfunctional anxiety-based network of cognitions and behavior [44].

Traditional CBT for anxiety encompasses a variety of therapeutic techniques, that are not necessarily all applied to each client: (a) psychoeducation; (b) monitoring/registering of symptoms; (c) relaxation/breathing training; (d) cognitive restructuring); (e) behavioral experiments, including exposure (imaginal or in vivo) and response prevention. Cognitive restructuring and behavioral experiments are thought to be the key elements of CBT for anxiety [44]. In cognitive restructuring, unrealistic and maladaptive negative thoughts are identified, critically examined and replaced with more adaptive cognitions. Behavioral experiments form a more direct method to disconfirm catastrophic expectations. By confronting previously avoided situations (or objects or bodily sensations) while not engaging in safety behaviors, corrective information is gathered and the link between the situation and anxiety is weakened [45].

While an impressive body of scientific literature supports the efficacy and effectiveness of traditional CBT for anxiety, clinical researchers have also been consistently interested in investigating other theoretically valid treatment alternatives. This is partly driven by a general desire to increase the number of evidence-based treatments for anxiety, thereby providing patients and clinicians with more flexibility in deciding on their preferred treatment. However, the search for evidence-based alternatives to traditional CBT also stems from findings that not all individuals with anxiety disorders can be equally successfully treated

with CBT (e.g., older adults seem to respond less favorably than younger adults), and both empirically and theoretically driven criticism on the key assumption of the cognitive model (that anxiety problems result from maladaptive cognitions and should therefore be treated by adapting these cognitions) [46-50].

An increasing amount of clinical and scientific interest has been dedicated to the so called third wave cognitive behavioral therapies. Instead of traditional CBT's focus on the content of a persons thoughts and emotions, third wave behavioral therapy approaches are mostly focused on the *context*, *processes*, and *functions* of how somebody relates to their internal experiences. Many of these third wave psychotherapies incorporate concepts such as acceptance, mindfulness, spirituality and metacognition. Within this family of therapies - Acceptance and Commitment Therapy (ACT) is one of the most theoretically strong and empirically evaluated treatment [50,51]. ACT is a transdiagnostic treatment approach that aims to foster psychological flexibility, which is defined as "the ability to be in contact with the private experiences that surface in the present moment without needing to avoid and/or escape from them, and to adjust one's behavior according to what the situation requires in order to pursue valued ends" [51]. Put differently, ACT focuses on two key principles: a) promoting an acceptance-based attitude towards internal experiences and b) clarification of personal values and engaging in actions that are in accordance with these values. ACT can be most clearly distinguished from traditional CBT in two ways. First, the treatments promote distinct strategies for handling maladaptive thoughts: traditional CBT aims to change the content of cognitions, while ACT aims to change how we relate and respond to cognitions. Second, their treatment goals differ: CBT mainly aims for symptom reduction, while ACT aims for a vital and valued life (with symptom reduction being a pleasant by product) [52,53].

ACT is commonly described in terms of six interrelated processes that stimulate psychological flexibility: a) acceptance, b) (cognitive) defusion, c) self as context, d) contact with the present moment, e) values, and f) committed action [51]. Acceptance refers to the process of stopping the struggle with painful internal experiences (emotions, thoughts, sensations, urges) and to instead open up and make room for these experiences. Defusion means 'untangling' from our thoughts. Instead of getting caught up in thoughts and being dictated by them, thoughts are seen for what they really are: words or pictures in our mind. Self-as-context (also sometimes called 'the observing self' or 'pure awareness') is the concept that we are not the content of our emotions and thoughts, but the consciousness that is experiencing those emotions and thoughts. Contact with the present moment consists of being psychologically present in the here and now; to connect and engage with whatever is happening in

the current moment. Values are desired qualities of ongoing action: they describe the kind of person we want to be and how we want to behave on an ongoing basis. Lastly, committed action refers to taking effective value-guided action: by behaving in a value-congruent manner, we can start building a rich, meaningful, vital life.

ACT has been found effective for a wide variety of patient populations, including adults with anxiety symptoms and disorders [54,55]. However, no high-quality trial into this treatment approach has yet been conducted in (anxious) older adults. The literature on ACT in older populations is currently limited to pilot studies and case studies which have concluded that ACT seems a promising treatment approach for anxious older adults that warrants a larger-scale investigation [56-58]. Although speculative at the moment, an argument could be made for why ACT may be especially acceptable and effective as a treatment for older adults. First, the ACT approach seems to align with age-related tendencies to behave in a more value-driven way, and to be more accepting towards (negative) internal experiences [59-61]. ACT may thus be especially beneficial for older adults, because it draws upon the psychological strengths commonly found in this age group [62,63]. A second reason why ACT might be a particularly befitting treatment for older adults is its transdiagnostic nature. Older adults often experience heterogeneous psychological problems, especially comorbid depression and anxiety [10]. Decreased levels of psychological flexibility have been linked to both anxiety and depressive symptoms, so stimulating psychological flexibility seems like a fruitful treatment approach in the older population [64].

3.3. Treatment setting: primary care

In 2008, the WHO published a report advocating for a global effort towards a better integration of mental health care services in primary care [65]. This is perceived to be the most efficient and affordable way of closing the treatment gap in people suffering from mental health problems. Services at the primary care level should consist of the prevention, detection and treatment of mental health problems and referral to more specialized institutions when required [66]. Studies in general adult samples have shown that treatment of (mild) psychological problems provided in primary care seems effective, easily accessible compared to treatment in specialized services and that it leads to satisfaction among patients and caregivers [67-69].

Improved integration of mental health services in primary care settings is thought to be especially beneficial for patient groups that commonly experience barriers in receiving appropriate mental health care in specialized settings. Older adults are one

of these groups. Research has shown that older adults are less likely to search for and receive professional help in specialized mental health care [33]. Older adults generally prefer to discuss and obtain help for their mental health problems in the more familiar and low-threshold setting of primary care, such as the general practice [70]. It is therefore important to conduct research into the effectiveness of primary care psychological interventions for older adults. To date, only a small number of studies have evaluated psychological treatments for older adults with anxiety in primary care. One study (n=31) compared a modular psychotherapy protocol to enhanced treatment-as-usual (in which healthcare providers were instructed to treat patients as they otherwise would, supplemented with a diagnostic assessment by the study staff and an appointment in which patients were informed by one of the researchers about their anxiety diagnosis) [71] and found that the modular protocol did not outperform the active control condition. However, in both conditions substantial improvements of anxiety and related clinical outcomes were observed. Another study (n=125) found that CBT for older patients with GAD in primary care was superior to enhanced usual care [72]. Lastly, a naturalistic study examined treatment outcomes in a group of 225 older patients in primary care receiving internet based CBT for depression or anxiety and concluded that it is an acceptable and effective treatment for this population [73].

Summarizing, psychological treatment in a primary care setting seems to align with older adult's treatment preferences and results regarding its effectiveness are promising. To improve the evidence-based practice in primary care mental health services, more pragmatic clinical trials, that evaluate psychological interventions for older adults in real-world primary care settings are required. In the Netherlands this translates to studies in which older adults receive short term treatment from mental health counselors working at a general practice (In Dutch such counselors are called Praktijkondersteuner Huisarts GGZ (POH-GGZ), which translates to *practice assistants mental health care*) [74]. The introduction of these mental health counselors in 2008 was one of the most important Dutch measures aimed at helping more patients with mental health problems in primary care [74]. The main tasks of these counselors are diagnostic assessment and short term psychological treatment for patients with non-complex mental health problems. Most clinicians in this occupation have an educational background in psychology, psychiatric nursing or social work [75]. Over the last decade, the number of Dutch general practices that employ a mental health counselor has grown steadily and these counselors play an increasingly important role in the Dutch mental health care system. A 2016 study found that 83% of Dutch general

practices employed a mental health counselor [75]. The number of patients seen by these counselors increased from 175.00 in 2013 to 571.000 in 2018 [76].

3.4. Treatment delivery format: internet-based treatment

To be able to provide a larger proportion of anxious older adults with adequate psychological treatment, it is important to study easily scalable, affordable, low-threshold interventions. Web-based psychological interventions are often mentioned as a promising way to decrease treatment costs, by reducing the therapist time per patient. Numerous controlled studies have been conducted into internet-based psychological treatment for a wide variety of mental health problems in general adult samples, including anxiety. The majority of these studies have examined CBT interventions [77]. Meta-analyses of these studies have shown that internet-based CBT forms an effective and promising alternative and complement to face-to-face treatment, especially if the internet-based help is guided by a clinician or coach (for example in the form of online feedback, e-mail contact or chat or telephone sessions) [78,79].

Older adults are underrepresented in studies into internet-based treatment. This might be the result of a common held conception that older adults often lack the willingness and/or ability to successfully work with internet-delivered services. However, as the computer literacy of older adults is steadily increasing each year, it is important to investigate the acceptability, effectiveness and uptake of internet based treatment for older adults [80]. So far, a small number of studies have examined the effectiveness of guided internet-delivered treatment for older adults with anxiety, all focusing on CBT interventions. All these studies conclude that internet delivered CBT with clinical guidance is (cost)effective in reducing anxiety symptom severity [81-84]. Furthermore, they did not report their older participants to experience significant obstacles or difficulties in working with the internet-based interventions. Internet-based psychological treatment thus seems promising for anxious older adults, although further research is still required.

Despite the promising results on the effectiveness of internet-based treatment for mental health problems, this type of treatment also has some disadvantages. Firstly, the lack of face-to-face contact does not match the treatment expectancies and preferences of a large group of patients that find ‘the talking aspect’ of psychological treatment particularly important. Furthermore, internet-based interventions often have a ‘one size fits all approach’, not allowing clinicians to tailor the intervention to the specific needs

of a client. Lastly, a purely online treatment setting might not suffice in crisis situations [85]. One way to partly overcome these barriers, is by combining face-to-face sessions with online treatment. This format is called 'blended treatment'. Blended treatment may combine the advantages of both face-to-face and internet-delivered treatment [85, 86]. The face-to-face contact enables clinicians to individualize the treatment and to adequately respond to crisis situations, while providing online modules between the face-to-face sessions could reduce therapist time and associated costs, increase patient self-management and stimulate the translation of treatment into daily life. No blended intervention has yet been evaluated in (anxious) older adults. However, adding face-to-face sessions to an internet-based intervention might be especially important in older populations, as research has shown that compared to younger adults, older adults put even more emphasis on talking and connecting with their therapist and consider this part of treatment to be the most important and helpful [87].

3.5. This doctoral thesis

To improve evidence-based treatment for older adults with anxiety it is important to broaden the scope of clinical trials in terms of therapeutic approach, treatment setting and treatment delivery format. ACT seems a promising treatment alternative to traditional CBT for older adults with anxiety, but strong empirical data to back up this claim are missing at the moment. To fill this gap in the literature, the current thesis will evaluate an ACT intervention in a large sample of older adults with anxiety symptoms. To properly investigate if the ACT intervention is a valuable treatment for anxiety in later life, the intervention will be compared to an enhanced treatment-as-usual condition consisting of a brief face-to-face traditional CBT intervention, as CBT is currently the gold standard psychological therapy for anxiety in later life. The ACT intervention under study is a blended intervention, as partly web-based interventions might play an invaluable role in providing treatment to the growing and currently underserved group of anxious older adults in a cost-effective way. We will conduct our study in the Netherlands, in the real-world setting of the general practice, where participants will receive short term treatment from a mental health counselor.

We will elaborately evaluate the blended ACT and CBT intervention: in addition to their clinical effectiveness, we will also examine their cost-effectiveness, moderators of treatment response to the interventions and potential mechanisms of change through which the interventions achieve their effects.

4. Aims and outline of this doctoral thesis

The first aim of this doctoral thesis is to provide an overview and integration of studies into the prevalence of anxiety in later life to answer two questions: how the prevalence of subthreshold anxiety compares to the prevalence of anxiety disorders in later life and how the prevalence of anxiety changes throughout the later life span. The second aim is to evaluate the (cost-)effectiveness of a brief blended ACT intervention compared to a brief CBT intervention. Additionally, we will investigate moderators and mediators of treatment effect. The content of the chapters of the doctoral thesis is shortly described below.

Chapter 2 contains a systematic review and meta-analysis that a) compares the prevalence rates of subthreshold anxiety and anxiety disorders in older adults and b) examines how prevalence rates change throughout the later life span.

Chapter 3 and 4 describe the study protocol and the main results of the randomized controlled trial (RCT) that evaluates the effectiveness of a brief blended ACT intervention for older adults with anxiety. The blended ACT intervention is compared to a brief face-to-face traditional CBT intervention. Effectiveness is evaluated in terms of anxiety symptom severity, depressive symptom severity, positive mental health, presence of anxiety disorder(s) and client satisfaction.

Chapter 5 describes a health economic evaluation of the interventions. The cost-effectiveness and cost-utility of the ACT intervention compared to the CBT intervention are assessed. Effects are presented in terms of long-term treatment response and QALY's.

Chapter 6 contains an explorative study into moderators and non-specific predictors of treatment response to the ACT and CBT intervention. This study provides insight into which variables differentially predict treatment response to the two treatments (moderators), and which variables are associated with better/worse treatment outcomes across both treatments (non-specific predictors).

Chapter 7 consists of a study into potential mechanisms of change of the ACT and the CBT intervention. We examine potential mechanisms related to the theoretical underpinnings of the treatment approaches, as well as variables assumed to drive change in psychotherapy in general.

Chapter 8 summarizes the results of the doctoral thesis and relates the findings to previous research. Strengths and limitations of the studies, recommendations for future research and implications for clinical practice are discussed.