The Influence of Depression and Anxiety on Ageing Stereotypes and Attitudes to Ageing among Older Adults

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Abstract

The promotion of successful aging is more important than ever before given the aging population worldwide. An emerging body of literature has explored the adverse impact negative aging stereotypes and negative attitudes towards aging have on older adult's health outcomes. Given the prevalence of anxiety and depression among older adults, the thesis portfolio aimed to explore the influence of mood on these aging stereotypes and attitudes towards aging among older adults.

A systematic review was conducted to synthesise the research that has examined anxiety and its related disorders in relation to these aging attitudes among older adults. The evidence suggested that higher levels of anxiety were consistently related to more negative attitudes towards aging, and aging stereotypes. Limitations were identified in the quality and quantity of the research included in the review.

The empirical study aimed to address these limitations and explored the relationship between mood and attitudes towards aging and aging stereotypes among a clinical sample of older adults with symptoms of anxiety and depression, to a non-clinical sample of older adults. Older adults with higher levels of anxiety and depression report more negative attitudes towards aging than those with sub clinical levels of anxiety and depression. This supports the hypothesis that attitudes towards aging are mood-state dependent. Aging stereotypes were less influenced by mood variables. Finally, attitudes towards aging and aging stereotypes were strongly correlated. The theoretical and clinical implications from this research regarding the application of therapeutic interventions are discussed, as well as recommendations for future research.

People between 65-79 report the highest level of wellbeing in comparison to the rest of the age span and the majority of older adults hold positive attitudes towards aging. Therefore, as clinicians and as a society we should be promoting this positive literature to tackle negative attitudes and stereotypes.

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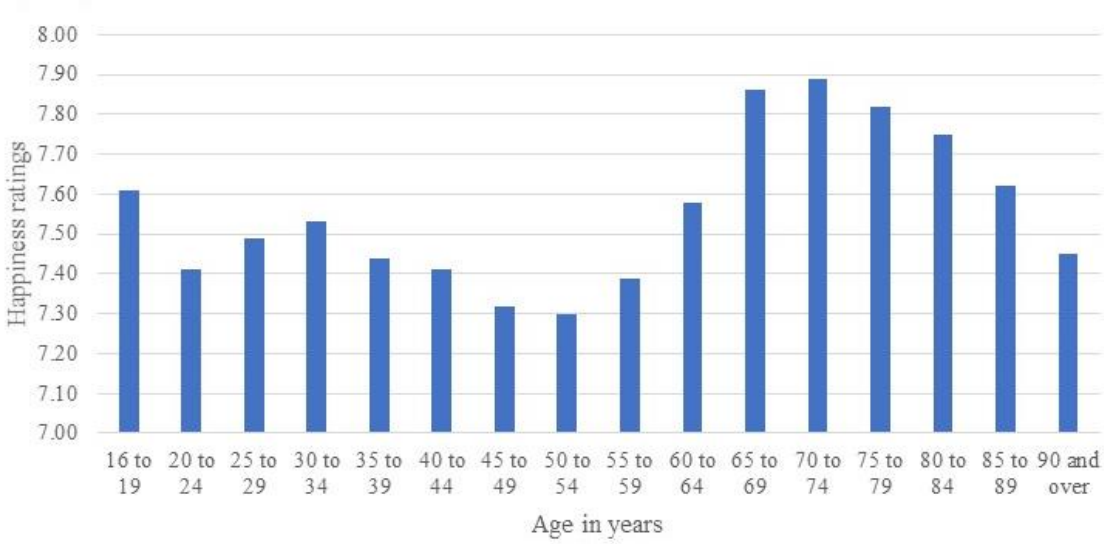
Introduction

This thesis portfolio consists of a narrative systematic review of the relationship between anxiety, and its related disorders with aging stereotypes and attitudes towards aging among older adults. Following this an empirical research project is presented, adding to the body of research exploring the influence of both depression and anxiety on aging stereotypes and attitudes to aging among older adults. Both are written in the form of academic papers for submission to the Journals of Gerontology, Series B: Psychological Sciences and Social Sciences. This journal specifies the use of the American Psychological Association (APA) style (see Appendix A for further journal guidelines). In addition, the portfolio includes extended methodologies as well as additional results of the empirical paper. An overall discussion and critical evaluation is then presented.

From the outset of this thesis portfolio, it felt important to promote what should be the benchmark for those heading into older adulthood in light of the positive aging research. People aged between 65-79 reported the highest level of wellbeing and happiness in comparison to the rest of the age span (see Figure 1). It has been found that most older people hold positive attitudes towards aging (Bryant et al., 2012) and longitudinal research suggests people become better at emotional regulation and report more emotional stability as they age (Carstensen et al., 2011). Further to this, a positivity bias has been found in which older people appear to remember emotionally positive information, more so than they do with negative information (Carstensen & Mickels, 2005).

Figure 1: *Wellbeing across the age span in the UK*



The promotion of successful aging is more important than ever given the aging population worldwide; the global population aged 60 or over consisted of 962 million people in 2017, this is expected to more than double by 2050, reaching nearly 2.1 billion people (UN, 2017). Whilst there is no universally agreed definition of successful aging, there are some core elements including absence of disability, subjective health and psychological wellbeing that are generally agreed (Bryant et al., 2012). Whilst some elements, such as chronic physical health conditions are not necessarily modifiable, others such as psychological wellbeing and attitudes may be more responsive to change.

This thesis portfolio therefore aims to explore older adult's psychological wellbeing and attitudes further, firstly to investigate the relationship between these two constructs. Theoretical and clinical implications will then be considered in light of the findings. Suggestions will be put forward for how change can be promoted in those suffering with their psychological wellbeing, in order to work towards more successful aging. Older adults themselves are the only group able to express personal

experiences of adaptation to the aging process. Understanding these personal experiences is vital to better understand the individual and shared experience of aging.

Anxiety and Attitudes to Ageing among Older Adults: A Systematic Review

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Abstract

Objectives

There is an emerging body of literature that has explored the adverse impact negative aging stereotypes and attitudes towards aging have on older adult's health outcomes. Given anxiety is the most common mental health disorder in older adults, this review aimed to synthesise the research examining anxiety, and its related disorders, in relation to attitudes towards aging and aging stereotypes among older adults.

Method

Databases including PsychiINFO, MEDLINE, PsychARTICLES and CINAHL complete were searched. Eligible studies were those conducted in any country, in peer reviewed journals, that included participants with a mean age of ≥60 years, where a measure of anxiety and either aging stereotypes or attitudes towards aging were used.

Results

10 studies were included in the narrative synthesis. This identified that negative attitudes towards aging and negative aging stereotypes were consistently related to higher levels of anxiety or anxiety related disorders. Longitudinal studies demonstrated those with more negative attitudes towards aging were more likely to have anxiety at follow up. The findings regarding more specific anxieties, such as aging anxiety and death anxiety were less conclusive given the dearth of research and heterogeneity.

Discussion

Limitations were identified in the quality and quantity of the research included in the review. Further methodologically rigorous research is required to make firmer conclusions regarding the nature and direction of the relationship between anxiety and negative attitudes towards aging and aging stereotypes. This remains an important finding however and clinical implications are discussed.

Keywords: Attitudes Towards Aging, Aging Stereotypes, Anxiety, Older adults, Systematic Review

Introduction

People aged between 65-79 reported the highest level of well-being in comparison to the rest of the lifespan (Office of National Statistics; March, 2018) indicating older adulthood as the happiest time of life for many people. It has also been found that most older people hold positive attitudes towards aging (Bryant et al., 2012). There is an aging population worldwide, with the number of persons aged 80 and over projected to triple, from 143 million in 2019 to 426 million in 2050 (UN, 2019), highlighting the importance of building a society in which people look forward to growing older, and remain healthy and active when they get there.

Aging is a highly individualized and complex process (Dionigi, 2015), and despite the positive literature about aging, prevailing social stereotypes focusing on older age as inevitably a period of negativity, sadness, and loss exist in Western societies (Shenkin et al., 2014, Luo, Zhou, Jin, Newman & Liang 2013, Abrams, Eilola & Swift 2009, Abrams, Russel, Vauclair & Swift 2011, Kite, Stockdale, Whitley, & Johnson, 2005). There is a growing body of literature that has explored the adverse impact these negative aging attitudes have on older adult's mental health (Levy et al.,, 2014, Shenkin et al.,, 2014), physical health and cognitive functioning (Robertson & Kenny, 2015).

Aging Stereotypes

Aging stereotypes are characterised as people's beliefs and prejudices towards older adults and aging. They have been found to be domain specific, with positive (wisdom, integrity) and negative (frailty, confusion) aspects of aging stereotypes existing within the same person (Fernández-Ballesteros et al., 2013). It can be difficult to avoid societal negative aging stereotypes and the stereotype

embodiment theory (Levy, 2009) explains that these personal stereotypes become salient when they are activated in later life via self-relevance, becoming self-stereotypes. These self-stereotypes are attributed to the individual that sees themselves as 'old'. The stereotype embodiment theory posits that this process occurs in two directions; top-down from society to individual, such as negative portrayals of older adults in the media (Levy et al., 2014); and over time, from childhood to old age.

This self-stereotype activation is less to do with chronological age, and more to do with when an individual identifies with being 'old'. Diehl and Werner-Wahl (2010) refer to this concept as awareness of age-related change (AARC). When somebody perceives their life has changed due to a consequence of aging, they become subjectively aware of their own personal experience of aging, at this point, negative stereotypes they may hold become salient. Experimental studies have provided further support for this theory, finding unconscious age stereotype primes that have led to age-stereotype congruent effects can be partially explained as occurring when the participants identify themselves as being old. This is further evidenced by younger participants following the same protocol experiencing weaker, reverse or even no effects (Levy, 2009, Hess, Hinson & Statham, 2004, Levy, Ashman & Dror, 2000).

Attitudes towards Aging

Attitudes towards aging are defined as older people's attitudes towards their own aging and experiences adjusting to this process. As with aging stereotypes, attitudes towards aging can be both positive and negative, and individuals may hold a mixture of both (Laidlaw et al.,, 2007).

A relationship has been found between mood and attitudes towards aging, and it has been posited that these attitudes could therefore change once mood disturbances have been resolved (Laidlaw, 2015, Shenkin et al., 2014). Laidlaw's (2015) model posits that when negative aging stereotypes are activated, vicious cycles occur in which negative aging cognitions impact negative affect and behavior, and vice versa. According to this model, any negative changes would be reinforcing and expected as a natural consequence of aging, leaving a feeling of hopelessness for change (Laidlaw, 2015).

Anxiety in late life

It has been estimated that between 1.2% to 15% of older adults experience clinical anxiety (Bryant, Jackson, & Ames, 2008). There are differing opinions about the comorbidity of anxiety and depression, with some arguing that most anxiety is present along with depression, and others stating the prevalence of comorbidity is lower than that of the individual disorders alone (Wetherell et al., 2005a). The UK Adult Psychiatric Morbidity Survey (APMS, 2014) found that anxiety disorders were twice as common than depression, in both 65-74 age category (4% and 2% respectively) and in the 75+ age category (2.5% and 1% respectively).

There are also age specific anxieties that are less well defined, such as death anxiety, described as anxieties related to the prospect of personal mortality (Tomer, 2000), which is thought to affect the way older adults live their lives, and experience the present (Fortner & Neimeyer, 1999); Dementia worry, described as an emotional response to the perceived threat of developing dementia, ranging from concern to phobia about developing memory or cognitive functioning difficulties (Kessler et al., 2012) and anxiety regarding aging, defined as worry and anticipation of adverse

consequences during the aging process (Koukouli, Pattakou-Parasyri, and Kalaitzaki, 2014). Research with undergraduate students has linked aging anxiety and agism (Allan & Johnson, 2009).

Anxiety is associated with two general cognitive processes, the over-estimation of threat, and the underestimation of ability to cope (Kennerly, Kirk, & Westbrook, 2017). It is possible therefore that if older adults have negative stereotypes of aging and these become self-stereotypes, that they will overestimate the negative aspects of aging, and undermine their ability to cope in old age.

Rationale for the current review

An unpublished systematic review exploring depression and attitudes to aging (Westgate, Leddy & Laidlaw, 2017) found that older adults who suffered with depression, or scored higher on depression measures, were more likely to have negative attitudes towards aging. Given the greater prevalence of anxiety in the older adult population, as well as the different anxieties relating to age, it is important to examine whether a similar relationship exists with late life anxiety. This would have implications for assessment and treatment of these symptoms, particularly when considering the adverse impact these negative aging attitudes can have on older adult's wellbeing.

There is a growing body of literature that describes several types of age-based attitudes, with subtle differences that have been conceptualised above. However, some research has treated the constructs of aging stereotypes and attitudes towards aging as essentially the same, falling under the 'attitudes towards aging' umbrella (North & Fiske, 2012). Therefore, for the purposes of this review, these

two constructs will be included in order to capture all age-based views among older adults.

Review aims

The principal aim of this systematic review is to synthesise research which has examined anxiety, and its related disorders, in relation to attitudes towards aging and aging stereotypes among older adults. As attitudes towards aging and aging stereotypes are thought to be domain specific, a secondary aim of the review is to identify which domains specifically related to anxiety.

Method

Prior to commencing the review, the Cochrane database was searched to determine whether the questions posed here have already been answered. A relevant unpublished review was identified which examined the relationship between attitudes towards aging and mental health among older adults aged 55 years and over (Long, 2013). As this review is now seven years old and used differing study criteria, it was felt the current review was unique and justified. The guidelines for undertaking systematic reviews in healthcare from the Centre of Reviews and Disseminations (University of York, 2009) were referred to during completion of this review as well as Shenkin et al.'s (2017) guidance relevant for systematic reviews with older adults. The protocol for this review was pre-registered on PROSPERO (CRD42020157680).

Inclusion and Exclusion Criteria

The eligibility criteria were developed using the PICOS approach (Shenkin et al., 2017)

Population. Studies were included provided the mean age of participants in the study was 60 years or older. For studies that used 55 years or above as their definition of older adults, the authors were contacted to gather further information about the sample and included if the mean age of participants was above 60 years, indicating a large proportion of participants were likely to fall above the specified age range. Studies were included if there was no age restriction, provided the results were presented in a way that made it possible to extract and specifically examine the older people in the sample. There were no exclusions made based on whether participants were from a clinical or non-clinical population, or based on the country the study was conducted in. This is because attitudes towards aging and aging stereotypes are considered constructs which can be measured within multiple cultures (Laidlaw et al., 2007).

Study Design. Observational studies including cohort studies, case-control, longitudinal and cross-sectional studies were included, as well as experimental studies. Studies were excluded which were qualitative in nature with no reported quantitative outcomes.

Measures. The measures for attitudes towards aging was required to measures one's attitudes toward their own aging, or the aging process. The measures for aging stereotypes was required to measure one's own views or stereotypes towards older people as a group. Anxiety, or its related disorders could be measured by structured clinical assessment or via self-report measures.

Primary Outcome. Studies were required to included statistics which determined direct associations between anxiety and attitudes towards aging, or aging stereotypes. Studies could utilise a within groups or between groups design.

Secondary Outcome. As attitudes towards aging and aging stereotypes are thought to be domain specific (Laidlaw et al., 2007, Fernández-Ballesteros et al., 2013), the review was also interested which domains were pertinent to anxiety. The *p* value was also used here to indicate significance.

Source. Articles were included from inception to 2019 to include all relevant studies. Where data from the same population dataset was reported in multiple studies, only the most relevant published study was included.

Search Strategy

The first author searched the following databases for the purposes of this review: PsychINFO (1947-2019), PsychARTICLES (1974-2019), MEDLINE (EBSCO; 1965-2019), and CINAHL Complete (1952-2019), and limited results to English language, peer reviewed journal articles utilising a human population. The search terms were (anxiet*) AND (((attitude*) AND (aging OR ageing)) OR ((ageism) OR (agism) OR (“age stereotyp*”) OR (“age prejudice”))) in the title, abstract, and keywords. Further to this, reference lists of included studies were hand searched for further relevant articles. The first author performed initial screening of titles and abstracts, articles which did not meet the inclusion criteria were excluded. Full texts were then screened, and reasons recorded as to why the inclusion criteria was not met.

As the focus of this review was to capture clinical presentations of anxiety where possible, to generalise findings to a clinical sample, the authors did not include related concepts such as ‘stress’ and ‘worry’. These are associated with lower levels of distress in comparison to the diagnostic criteria of anxiety and are considered separate constructs.

Data Abstraction

Each included study had the following information extrapolated: Study details (authors, year, country of origin), participant characteristics (ages, sample size, population), study design, anxiety measurement tool and reliability scores, attitudes towards aging/aging stereotype measurement tool and reliability scores, quantitative analysis and relevant findings.

Assessment of Heterogeneity

Heterogeneity of studies was assessed comparing included studies on population, design, measurement tool utilised and quantitative analysis.

Planned Analysis

A narrative synthesis approach was deemed adequate to address the review aims. Providing there is appropriate heterogeneity between included studies, a quantitative meta-analysis could also be appropriate.

Quality Criteria

A quality checklist was adapted for use in this review to examine bias, by using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (QATOCCS) (See Appendix B, National Heart, Lung and Blood Institute, 2014). Adaptations included (i) removing items not relevant to the current review, such as blinding, and (ii) adding whether the measures were appropriate for the older adult population. In order to minimise rater bias, 20% of the included studies were rated by a second author. Any difference in final quality ratings will be discussed and final agreement reached.

Results

Study Inclusion

Figure 2 depicts the literature search process. The details of the final studies are described in Table 1.

Two of the studies utilised the same dataset (Levy, Pilver, & Pietrzak, 2014, Levy, Chung, Slade, Van Ness, & Pietrzak, 2019), and therefore the one which met the inclusion criteria and review aims most appropriately remain included.

The authors of four studies were contacted in order to ascertain the mean age of the participants and number of participants under the age of 60 years old (Nuevo, Wetherell, Mintorio, Ruiz & Cabrera, 2009, Levy et al., 2019, Bodner et al., 2015, Valley, 2015). One study no longer met inclusion criteria as the mean age of participants was under 60 years of age (Bodner et al., 2015).

Finally, three of the studies utilised cortisol measurements and cardiovascular responses to indicate stress. As stress is a conceptually distinct construct to anxiety, despite sharing some overlapping symptoms, these studies were excluded on this basis to ensure the clinical nature of the sample.

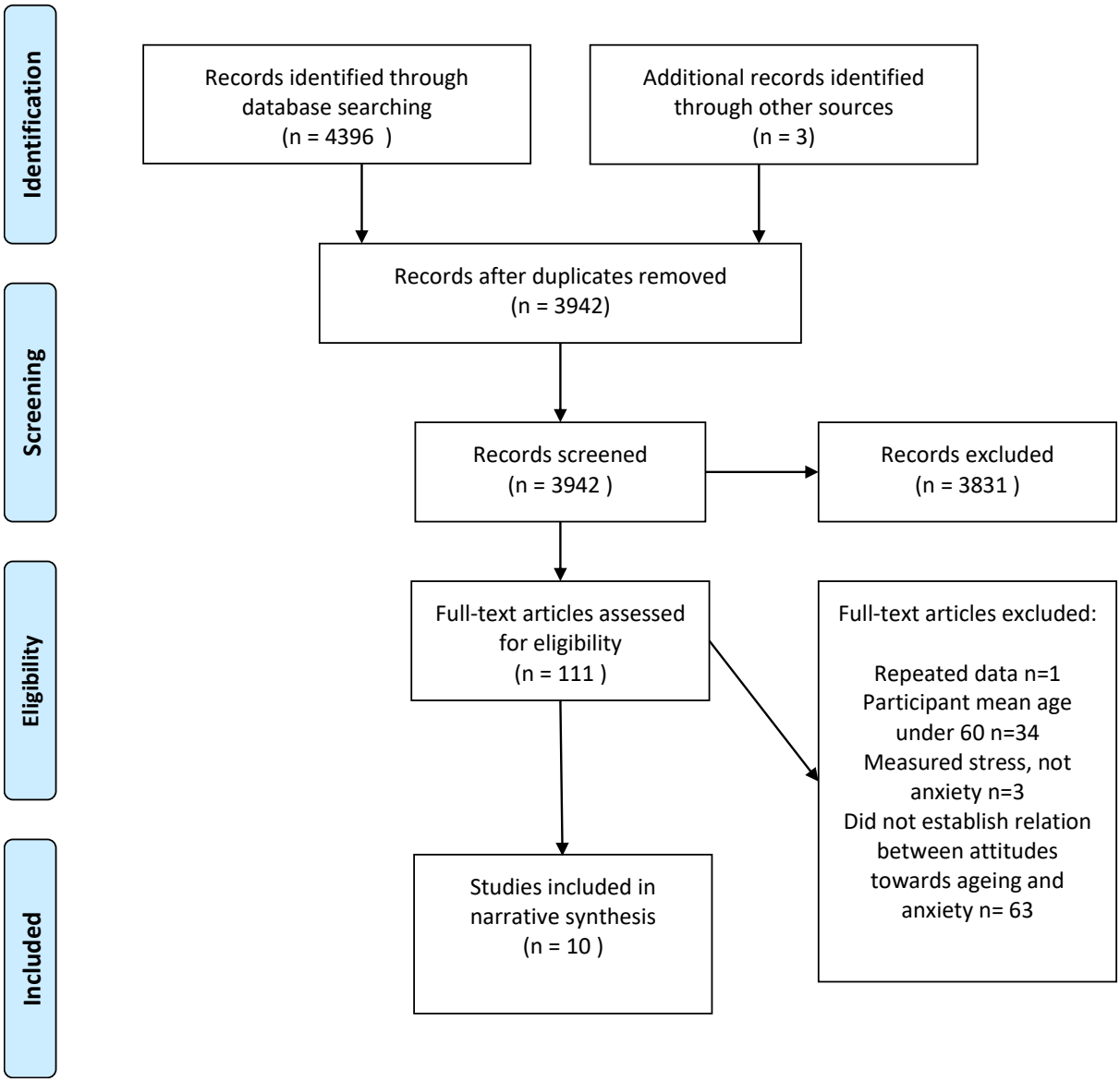

Figure 2. *Flowchart Illustrating the Literature Search Process, based on PRISMA guidelines*

Table 1

Summary of Study Characteristics

Author (year) Country	Participant characteristics	Study design	Anxiety measure and reliability scores	Attitudes towards aging measure and reliability scores	Analysis and relevant findings	Quality rating
Lynch (2000) America	**Age** *M*=72.53, *SD*=6.04 **Sample size** 170 **Population** Community dwelling	Cross Sectional Design	Aging Anxiety Scale. **Mean scores** Appearance= 1.43 Health =2.57 Future = 2.38 Finances = 2.28 Mobility = 3.02 Loneliness = 1.62 Independence = 2.74 Reliability statistics were not provided	Palmore's Facts-About-Aging Quiz (FAQ) **Mean Score** 13.69 Reliability Statistics were not reported.	**Analysis** Multiple indicator, multiple causes models (MIMIC) **Main findings** Knowledge of aging was not found to significantly influence aging anxiety.	Fair
Freeman et al. (2016) Ireland	**Age** *M*=63.3 *SD*= 9.0 **Sample Size** 8504 **Population** Community dwelling	Longitudinal design	Hospital Anxiety and Depression Scale (HADS-A) **Mean Score** Mean scores were not reported. **Reliability Statistics** 89% sensitivity and 75% specificity for generalized anxiety disorder	Brief Aging Perceptions Questionnaire (B-APQ) **Mean Score** Mean score for those with Anxiety = 45.1 Mean score for those without anxiety = 39.9 **Cronbach Alpha** 0.7	**Analysis** Multivariable logistic regression **Main findings** Incidence: Individuals with higher negative perception of aging at baseline were more likely to develop anxiety at follow up (OR=1.04) Persistence: Among individuals who had anxiety at baseline, higher levels negative perception of aging at baseline predicted the persistence of anxiety at follow up (OR=1.04)	Good

Valley et al. (2015) France	**Age** *M* = 69.42 *SD* = 7.750 **Sample Size** 298 **Population** Community dwelling	Cross Sectional Design	State-Trait Anxiety Inventory (STAI) **Mean Score** 1.89 **Cronbach Alpha** 0.880	Beliefs about forgetting and aging (BAFA) **Mean Score** 3.81 **Cronbach Alpha** 0.826	**Analysis** Correlation **Main Findings** Results indicated there was a significant positive association between Anxiety and BAFA scores (*R*(293).176, *p*<.01)	Poor
Depaola et al. (2003) USA	**Age** *M*= 69.4 *SD* not provided **Sample Size** 98 **Population** Community dwelling	Cross Sectional Design	Personal Anxiety Toward Aging (PAAS) The Multidimensional Fear of Death Scale (MFODS) **Mean Score** **PAAS** Male= 45.10 Female= 46.9 **MFODS** Male= 113.50 Female= 115.60 **Cronbach's Alpha** **PAAS= .65** **MFODS= .75**	Stereotypic Age Decrement Scale (SADS) The Social Value of Elderly Scale (SVES) **Mean Score** SADS Males= 51.60 Females= 51.40 SVES Males= 36.73 Females= 38.50 **Cronbach's Alpha** SADS= .78 SVES= .60	**Analysis** Correlations and Regression **Main Findings** Correlations: Negative stereotypes of the elderly were significantly associated with global death anxiety (.24 *p*<.01). Negative stereotypes of the elderly were significantly associated with anxiety towards aging (.43, *p*<.01) Negative attitudes towards the elderly were significantly associated with global death anxiety (.38, *p*<.01) Negative attitudes towards the elderly were not significantly associated with anxiety towards aging. Regression: Anxiety about aging was a significant predictor of negative attitudes towards the elderly (*b*=.2732). Death anxiety was not a significant predictor of negative attitudes towards the elderly.	Poor

Bryant et al. (2012) Australia	**Age** *M*=71.67, *SD*=7.93 **Sample Size** 421 **Population** Community dwelling	Cross sectional design	Geriatric Anxiety Inventory (GAI) **Mean Score** 3.14 **Cronbach's Alpha** 0.95	The Attitudes to Ageing Questionnaire (AAQ) **Mean Score** PSYSOLOSS= 16.39 PHYCH= 26.12 PSYGRO= 28.49 **Cronbach's Alpha** Overall AAQ= 0.61 Subscales; PSYSOLOSS= 0.81 PHYCH= 0.76 PSYGRO= 0.72	**Analysis** Multiple regression analysis **Main Findings** The psychological loss domain of the AAQ significantly predicted anxiety scores (B = 0.41, t = 8.13, p <.01). Attitudes towards aging accounted for 16% of the variance in anxiety scores, above demographics and physical health.	Fair
Levy et al. (2019) America	**Age** *M*= 68 *SD*= 7.9 **Sample Size** **GAD:** 2246 free of GAD at baseline, 1642 first follow-up 1089 second follow-up. **PTSD:** 2117 free of PTSD at baseline, 1523 first follow-up and 1013 second follow-up. **Population** Veterans, Community dwelling	Longitudinal Design	GAD: Patient Health Questionnaire-4 PTSD: PTSD Checklist for DSM-IV **Mean Score** Not provided Reliability Statistics were not reported.	Expectations Regarding Aging (ERA) questionnaire **Mean Score** **4.67** Reliability Statistics were not reported.	**Analysis** Event-history analyses and logistical regression **Main Findings** Higher ERA scores were associated with higher odds of developing GAD (OR = 1.78-6.55) and PTSD (OR= 1.96-5.67); The odds roughly doubled for those in the ERA = 1 category, tripled for those in the ERA = 2 category, and sextupled for those in the ERA = 3 category, relative to those in the baseline-ERA = 0 category.	Good

Molden and Maxfield (2017) America	**Age** *M*= 71.65 *SD* = 6.57 **Sample Size** 80 **Population** Community dwelling	Experimental design	The Fear of Alzheimer's Disease Scale (FADS) **Mean Score** 1.20 **Cronbach's Alpha** 0.94	Positive and negative age stereotype priming **Mean Score** N/A **Reliability Statistics** N/A	**Analysis** ANOVA, and ANCOVA controlling for stereotype relevance **Main Findings** Responses on the FADS were significantly higher in the negative stereotype priming conditions (p = .05, η_p^2= 0.12). Controlling for stereotype relevance resulted in more robust statistical significance and markedly increased effect size (p = .004, η_p^2= 0.28).	Fair
Nuevo et al. (2009) Spain	**Age** *M*= 71.0 *SD* = 6.3 **Sample Size** 120 **Population** Community dwelling	Cross sectional study	Penn State Worry Questionnaire (PSWQ-A) **Mean Score** Not provided Reliability Statistics were not provided.	Palmore's Facts-About-Aging Quiz (FAQ) **Mean Score** Not provided Reliability Statistics were not provided.	**Analysis** Correlations Mediational analysis **Main Findings** A significant negative relationship between FAQ and PSWQ-A scores (r=-0.461, p<.001). Complete mediation of intolerance of uncertainty was not established.	Fair
Shenkin et al. (2014) Ireland	**Age** *M*=69.5 *SD*=0.83 **Sample Size** 792 **Population** Community dwelling	Cross sectional design	Hospital Anxiety and Depression Scale (HADS-A) **Median Score** 5 Reliability Statistics were not reported	The Attitudes to Ageing Questionnaire (AAQ) **Mean Scores** Psychosocial loss= 15.2 Physical Change= 28 Psychological Growth= 28.3 **Cronbach's Alpha** Psychosocial Loss α = 0.80; Physical Change α = 0.77; Psychological Growth α = 0.75	**Analysis** Correlations and multiple regressions **Main Findings** Anxiety scores were significantly associated with the psychological loss domain (r=-.292, p=<.01) and physical change domain (r=-.169, p=<.01) but not with psychological growth domain. Anxiety scores significantly predicted the psychological loss domain of the AAQ (b=.327, p<.01) Anxiety scores did not significantly predict the physical change or psychological growth domain of the AAQ.	Fair

Smith and Bryant (2019) America	**Age** *M*=68.12, *SD*=6.31 **Sample Size** 303 **Population** Community dwelling	Experimental design	6-item Short-Form of the state scale of the Spielberger State-Trait Anxiety Inventory **Mean Score** 1.55 **Cronbach's Alpha** .87	The 12-item Expectations Regarding Aging Survey (Sarkisian et al., 2005) The 8-item Psychological Growth subscale from the Attitudes to Ageing Questionnaire (AAQ) **Mean scores** Expectations Regarding Aging Survey= 2.36 AAQ= 4.10 **Cronbach's Alpha** .87	**Analysis** ANCOVA Correlations **Main Findings** ANCOVA: There were no significant differences in anxiety among the three experimental groups after adjusting for covariates ($F(2, 293) = 0.63$, $p = .531$, $\eta_p^2 = .004$) Correlations: Anxiety was significantly associated with negative perceptions of aging (r=.33, p<.05) Those reporting more positive perceptions of aging had reported less anxiety (r=-.45, p<.05)	Fair

Note. M= Mean, SD = standardised deviation, η_p^2 = Partial eta squared

Table 2

Quality of Studies

	Research Question	Study Population			Sample size Justification	Exposure assessed prior to outcome measurement	Sufficient timeframe to see an effect?	Outcome measures				Follow up rate	Statistical Analysis	Overall Quality Rating
Studies	1	2	3	4	5	6	7	8	8a	9	9a	10	11	
Lynch, 2000	Yes	Yes	Yes	CD	Yes	No	NR	No	No	No	No	N/A	Yes	Poor
Freeman et al. 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Good
Valley et al. 2015	Yes	No	No	CD	Yes	No	NR	Yes	No	No	No	N/A	Yes	Poor
Bryant et al. 2012	Yes	Yes	Yes	No	Yes	No	NR	Yes	Yes	Yes	Yes	N/A	Yes	Fair
DePaola et al. 2003	Yes	No	No	CD	Yes	No	NR	Yes	No	Yes	No	N/A	No	Poor
Levy et al. 2019	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Good
Molden & Maxfield, 2017	Yes	Yes	No	CD	Yes	No	No	Yes	No	Yes	Yes	N/A	Yes	Fair
Nuevo et al. 2009	Yes	Yes	Yes	CD	Yes	No	NR	Yes	Yes	No	No	N/A	Yes	Fair
Shenkin et al. 2014	Yes	Yes	No	Yes	Yes	Yes	NR	Yes	Yes	Yes	Yes	No	Yes	Good
Smith & Bryant 2019	Yes	Yes	No	CD	Yes	No	No	Yes	No	Yes	Yes	N/A	Yes	Fair

Quality Assessment and risk of bias

A summary of the results of the quality appraisal can be found in Table 2. The majority of included studies achieved ratings of 'fair' or 'good' in overall quality, all included studies used clearly stated research questions, included sample size justifications or estimates of effects sizes, and all but one study measured and adjusted for potential confounding variables in their analyses'. Three studies were rated as 'poor' in overall quality. This was mostly due to the cross-sectional nature of the studies; as higher quality study designs help determine causal relationships. These studies also had poorly defined and unrepresentative study populations and lacked use of valid and reliable measures suitable for an older adult population (Lynch, 2000, Valley et al., 2015, DePaola, Griffin, Young, & Neimeyer, 2003). This could have led to selection biases and measurement biases and therefore findings must be interpreted with caution.

Studies most commonly scored poorly on using measurement tools that were unsuitable for an older adult populations, with only three utilising measures that were for anxiety, (Freeman et al., 2016, Bryant et al., 2012, and Neuvo et al., 2009), and five for attitudes towards aging (Freeman et al., 2016, Bryant et al., 2012, Molden & Maxfield 2017, Shenkin, et al., 2014, Smith & Bryant, 2019). The quality assessment will be referred to when interpreting the results of studies.

Heterogeneity of Studies

The studies appeared to be heterogeneous. They were conducted using multiple measures, designs and analyses. The populations were all community dwelling older adults, however cultures differed with populations from America, Ireland, Australia, France and Spain.

Data Analysis

Given the heterogeneity of the studies, a meta-analysis was deemed not appropriate (Popay et al., 2006). A narrative synthesis was considered suitable to address the review aims and the Cochrane guidelines for carrying out a narrative synthesis (Ryan, 2013) was followed.

Study Details

Ten studies were included in order to synthesise the findings investigating anxiety and attitudes towards aging among older adults. Details about the analysis of the relationship between these concepts were extracted and reported. These details might not represent the whole study but is the focus relevant for this review.

Participant characteristics.

The sample sizes ranged from 80 (Molden & Maxfield, 2017) to 6095 participants (Freeman et al., 2016), totalling 10,623 participants in total across the ten studies. The mean age ranged from 63.3 (Freeman et al., 2016) to 72.5 (Lynch, 2000). All participants were community dwelling, and the geographical spread was reasonably broad; five from America, two from Ireland, one from Spain, one from Australia and one from France. These can all be considered Westernised countries.

Study Design.

Most of the studies utilised cross sectional designs (Shenkin et al., 2014, Nuevo et al., 2009, Depaola et al., 2003, Bryant et al., 2012, Valley et al., 2015, Lynch, 2000). Two studies utilised longitudinal designs (Freeman et al., 2016, Levy et al., 2019), the remaining two studies utilised experimental designs (Molden & Maxfield, 2017, Smith & Bryant, 2019).

Measures.

The measures used for anxiety were varied. Of those studies looking at anxiety more globally, two utilised the State-Trait Anxiety Inventory (STAI, Smith & Bryant, 2019, Valley et al., 2015). Two utilised the Anxiety domain of the Hospital Anxiety and Depression Scales (HADS-A, Freeman et al., 2016, Shenkin et al., 2014). The remaining studies used the Geriatric Anxiety Inventory (GAI, Bryant et al., 2012), the Patient Health Questionnaire (PHQ-4) and the PTSD Checklist for DSM-IV (Levy et al., 2019), and the Penn State Worry Questionnaire (PSWQ-A. Neuvo et al., 2009). The GAI was the only measure developed specifically for older adults (Pachana et al., 2007), however, the PSWQ-A and HADS-A are validated for use with older adults. The remaining three studies looked at specific types of anxieties. One study looked at anxiety in relation to developing Alzheimer's and used the Fear of Alzheimer's Disease Scale (FADS, Moulden & Maxfield, 2017). Two studies looked at Aging anxiety using the Aging Anxiety scale (Lynch, 2000) and the Personal Anxiety Toward Aging (PAAS, Depaola et al., 2003), with the latter also measuring death anxiety using the Multidimensional Fear of Death Scale (MFODS). Four of the studies did not report the internal consistency for the anxiety measure within the samples (Lynch, 2000, Levy et al., 2019, Neuvo et al., 2009, Shenkin et al., 2014). Those that did, reported alpha levels between 0.65 and 0.95 considered within the acceptable range (Griethuijsen et al., 2014).

The measures used to assess attitudes towards aging also varied. Two studies utilised the full Attitudes towards Ageing Questionnaire (AAQ, Shenkin et al., 2014, Bryant et al., 2012) with one utilising the Psychological Growth domain of the AAQ, along with the Expectations regarding Aging survey (Smith & Bryant., 2019), Levy et al (2019), also utilised the Expectations regarding Aging survey. Another study

used the Brief Aging Perceptions Questionnaire (B-APQ, Freeman et al., 2016). In terms of assessing aging stereotypes, two studies used Palmore's facts about aging quiz (Lynch, 2000, Nuevo et al., 2009). The remaining studies utilised the Beliefs about Forgetting and Aging scale (BAFA, Valley et al., 2015), the Stereotypic Age Decrement Scale (SADS) and the Social Value of the Elderly Scale (SVES, Depaolo et al., 2003). Finally, Positive and negative age stereotype priming was utilised in an experimental study (Molden & Maxfield, 2017). Three of the studies did not report the internal consistency for the measures within the samples (Lynch 2000, Neuvo et al., 2009, Levy et al., 2019). Those that reported internal consistencies reported alpha levels between 0.70 and 0.87 considered within the acceptable range (Griethuijsen et al., 2014).

Statistical Analysis

Both longitudinal studies used logistical regressions to give odds ratios of anxiety in the presence of negative attitudes towards aging (Freeman et al., 2016., Levy et al., 2019). The experimental design studies used ANCOVAs to test differences between groups, whilst controlling for key covariates (Molden & Maxfield, 2017; Smith & Bryant, 2019). The cross-sectional studies sought to establish the linear relationship between anxiety and attitudes to aging using correlations (Nuevo et al., 2009; Valley et al., 2015) or regressions (Lynch, 2000; Bryant et al., 2012) or both (Depaola et al., 2003, Shenkin et al., 2014).

Key Findings

Anxiety and Attitudes towards Aging.

The studies that utilised correlational analysis consistently demonstrated that higher levels of anxiety were associated with more negative attitudes towards aging

and aging stereotypes (see Table 3, Smith & Bryant, 2019, Valley et al., 2015, Shenkin et al., 2014, Nuevo et al., 2009). For studies that utilised domain specific measures, namely the AAQ, higher scores on the psychological loss and physical change domains were associated with higher levels of anxiety. One study found a negative association between the psychological growth domain of the AAQ and anxiety, indicating that higher levels of anxiety were associated with fewer positive perceptions of aging as measured by this domain (Smith & Bryant, 2019). However, another study did not find a significant correlation between the psychological growth domain and anxiety (Shenkin et al., 2014). Shenkin et al. (2014) was rated as higher in quality, and baseline measures of anxiety were tested before the outcome of interest; attitudes towards aging. Participants in Smith and Bryant's (2019) study completed measures of anxiety following a reflection task which was designed to invoke positive or negative perceptions of aging, this lacked external validity and measures of anxiety were not completed before the reflection task, questioning whether causal inferences can be made.

The studies that utilised regression analysis illustrated that the psychosocial loss domain of the AAQ significantly predicted anxiety scores (see Table 4, Bryant et al., 2012), and anxiety scores significantly predicted psychological loss scores (see Table 4, Shenkin et al., 2014), however the physical change, and psychological growth domains were not significant predictors of anxiety, nor anxiety significant predictors of these two domains.

Table 3.

Correlational Analyses

Studies	*r*	*p*
Global Anxiety		
Smith & Bryant,	AAQ	
2019	Psychological Growth= -.45	<.05
	Negative Perceptions of Aging= .33	<.05
Valley et al., 2015	BAFA = .18	<.01
Shenkin, Laidlaw,	AAQ	
& Mead, 2014	Psychological Loss= -.29	<.01
	Physical Change= -.17	<.01
	Psychological Growth= -.05	Not significant
Aging Anxiety		
Nuevo et al 2009	FAQ = -.46	<.001
Depaola et al 2010	SADS = -.42	<.01
	SVES = .40	Not significant
Death Anxiety		
Depaola et al 2010	SADS = .24	<.01
	SVES = .38	<.01

Note. *r* = correlation coefficient

Table 4.

Regression Analyses

Studies	*B*	*p* value
Bryant et al 2012		
Dependent variable		
Anxiety	.41	<.01
Independent variable		
AAQ Psychosocial Loss		
Shenkin, Laidlaw & Mead, 2014		
Dependent variables		
AAQ		
Psychosocial loss	.327	<.01
Physical Change	.164	Not significant
Psychological Growth	.058	Not significant
Independent variable		
Anxiety		

Longitudinal studies found that those holding more negative attitudes towards aging were more likely to develop anxiety (OR=1.78-6.55, Levy et al., 2019, OR=1.04, Freeman et al., 2016), and PTSD (OR=1.96-5.67, Levy et al., 2019). Further to this, among those who had anxiety at baseline, higher levels of negative attitudes towards aging predicted the persistence of anxiety at follow up (OR=1.04, Freeman et al., 2016).

Finally, one experimental study found that there were no significant differences in anxiety following a reflection task designed to provoke either positive or negative perceptions of aging (Smith & Bryant, 2019). However, it could be that the manipulation did not effectively induce negative perceptions of aging.

Many of the studies controlled for other variables in order to ascertain if anxiety and attitudes towards aging were still related. They showed that when demographic factors were controlled for, the relationship between anxiety and attitudes towards aging or aging stereotypes remained significant (Bryant et al., 2012, Shenkin et al., 2014, Moulden & Maxfield., 2016, Freeman et al., 2016, Levy et al., 2019, DePaola et al., 2010).

Anxiety related disorders

Aging anxiety and Attitudes towards aging. One study differentiated between aging stereotypes and attitudes towards aging. The results indicated higher levels of aging anxiety were significantly associated with negative stereotypes of the elderly, but not with attitudes towards the elderly. However, regression analyses found anxiety about aging was a significant predictor of negative attitudes towards the aged (b= .273, p<.001, Depaolo et al., 2010). Of note, the attitudes towards aging measure (SVES) focused on perceptions of older persons as a group, not themselves,

indicating it most likely capturing aging stereotypes. The other study did not find negative attitudes to be a significant predictor of aging anxiety (Lynch, 2000). It is important to note that both studies were rated as poor in quality.

Death Anxiety and Attitudes towards aging. Death anxiety scores were found to be significantly correlated with negative stereotypes towards aging and negative attitudes towards the elderly. However, death anxiety was not found to significantly predict negative attitudes towards the aged when regressions were completed including other predictors, such as age, anxiety towards aging and fear of the unknown (Depaolo et al., 2010). As mentioned previously however, both measures appeared to be measuring aging stereotypes.

Dementia worry and Attitudes towards aging. The study that looked at Dementia worry found increasing exposure to negative aging stereotype primes significantly increased dementia worry, demonstrating a medium to large effect size ($\eta p2=0.12$), this effect was strengthened when relevance of aging stereotypes was controlled for ($\eta p2=0.28$) (Molden & Maxfield, 2017).

Discussion

This review aimed to systematically synthesise studies which have explored the association between anxiety and attitudes towards aging, and aging stereotypes among older adults.

Primary findings

Of the 10 studies reviewed, 9 demonstrated that negative attitudes towards aging, and negative aging stereotypes are related to anxiety, or anxiety related disorders. All but two of these studies which found significant associations were rated as either ‘fair’ or ‘good’ in methodological quality, meaning some conclusions

can be made based on these findings. The findings indicated that the higher reported levels of anxiety on measures, including dementia worry, the more negative attitudes towards aging they will have. Many of these studies controlled for other variables such as physical health and demographics and continued to find significant associations. Therefore, findings indicate there is a fairly robust relationship between anxiety and attitudes towards aging among older adults.

Longitudinal studies also indicated that those with more negative attitudes towards aging were more likely to develop or have persistent anxiety at follow up, which provides some limited evidence for a temporal relationship. These were rated as ‘good’ in quality.

The findings regarding more specific anxieties were less conclusive given the lack of research, rated as poor in methodology. There is a need for more robust research to draw any conclusions regarding the relationship with death anxiety and aging anxiety and attitudes towards aging.

Secondary Findings

The secondary aim of this review was to explore which domains were most related to anxiety. Only three studies utilised domain specific measures of attitudes towards aging; the AAQ, and therefore conclusions are limited. The psychosocial loss domain was most commonly associated with anxiety; it was the largest predictor of anxiety and the only significant predictor compared to the other domains. Anxiety scores were also a significant contributor to this domain, and not the other two domains. This may be partially explained by the cognitive processes associated with anxiety, there is a bias in anxiety towards the over-estimation of threat, and/or the underestimation of ability to cope (Kennerly, et al., 2017). The psychosocial loss

domain asks questions around losing physical independence, exclusion from society, more difficulties talking about feelings, all of these aspects threaten an individual's autonomy and imply a lack of coping with old age.

The Psychological growth domain was not found to be significantly associated with anxiety. This domain is associated with wisdom, and generativity, and it has been posited as a more stable domain in previous research, that isn't mood congruent or affected by physical ability (Laidlaw et al., 2018).

Methodological Limitations in Reviewed Literature

This review has highlighted not only a dearth of research in this field relating to anxiety and attitudes towards aging, with just 10 included studies, but also numerous methodological limitations to consider. Most of the studies were cross sectional in nature which means causal relationships cannot be determined, cross sectional studies are also susceptible to bias due to typical respondents, with the majority using survey data. There was minimal use of measures suitable for an older adult population which could have led to measurement biases. The questionnaires used to measure attitudes towards aging varied and despite being cited as measuring attitudes towards aging, could have been tapping into a different underlying construct, such as knowledge of aging, or stereotypes, which weakens the robustness of these studies.

Further to this, anxiety was measured with self-report questionnaires, which act as screening tools (Yesavage et al., 1983), this questions how well it measures anxiety above the clinical cut off and introduces self-report bias (Fernández-Ballesteros, 2003). In order to draw firmer conclusions regarding the clinical relevance of the association between anxiety and negative attitudes towards aging, a

psychiatric sample would need to be utilised, including structured clinical judgements from professionals to corroborate anxiety diagnoses.

Limitations

A limitation of this review is that it included studies with participants under the age of 60, providing the mean age of the sample was above this, this could have affected the validity of the 'older adult' samples. There is no generally agreed criterion for 'older adults' (Shenkin et al., 2017), the World Health Organisation (WHO) define older adults as over the age of 60 years (WHO, 2016). However, in other areas, such as Africa, older adults are defined as over the age of 50 (WHO, 2002). As this review did not make exclusions based on country of study, it was deemed appropriate to include studies whereby the mean age was over the westernised WHO (2016) definition of 'older adults'.

A further limitation of this review is that date limits were not applied in the search criteria. Over half of the studies were dated within the last 5 years, however one study for example was dated 20 years ago. There could be differences between attitudes towards aging and anxiety over such a time period that were not explored, as well as conceptual difference about how these constructs are defined. However, given the limited research, it was deemed important to capture the full evidence base to date.

Another limitation of this review is only published articles were included and therefore there is risk of publication bias, in which only studies with significant findings have been published. There was also limited research into this area, which was heterogeneous and so could not be compared through statistical means, this limits the scope of interpretation.

The review included a reasonable broad spectrum of countries, which could all be categorised as westernised nations, with predominately white populations. The results of this review therefore cannot be generalised to other non-western cultures and populations.

Theoretical and Clinical Implications

Although the studies did not use clinical populations, results do indicate that those with more symptoms of anxiety will be more likely to have negative attitudes towards aging. The NICE guidelines for anxiety (2014) recommends the use of Cognitive Behavioural Therapy (CBT), a key aspect of CBT is cognitive testing; challenging beliefs which perpetuate the anxiety (Beck, Emery & Greenberg, 1985). Laidlaw's model (2015) posits that a vicious cycle can occur whereby these negative aging cognitions impact negative emotions and behaviour and vice versa. Older adulthood can be one of the happiest times of life for many people, so challenging these negative beliefs about aging, particularly those related to psychosocial loss, could prove to be a worthwhile intervention in order to break this vicious cycle. Similarly, increasing social inclusion could improve negative attitudes and subsequently improve anxiety symptoms.

Having more positive expectations about aging, as well as more knowledge about aging was associated with lower levels of anxiety. Therefore, psychoeducation promoting the positive aging literature could also be key to tackling negative attitudes towards aging and aging stereotypes.

Conclusion

A limited amount of research has been conducted exploring anxiety and attitudes towards aging and aging stereotypes among older adults. There is evidence

however to support the notion that those with higher levels of anxiety, or anxiety related symptoms are likely to have more negative attitudes towards aging. More methodologically rigorous research is required to make firm conclusions regarding the nature and direction of this relationship, utilising consistent and validated measures suitable for use with older adults. Given the prevalence of anxiety in the older adult population and the negative impact these attitudes towards aging can have on social and psychological outcomes, this remains an important finding.

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Systematic Review Extended Methodology

Quality Checklist

A quality checklist was adapted for use in this review to examine bias, by using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (QATOCCS) (See Appendix B, National Heart, Lung and Blood Institute, 2014). The original 14-item tool allows the rater to answer the quality items with a 'yes', 'no', 'cannot determine', 'not reported', or 'not applicable', utilising the prespecified guidance for reference. The rater then summarises and critically evaluates the studies on the basis of the responses and provides a final rating of 'good', 'fair', or 'poor'.

In order to minimise rater bias, 20% of the included studies were rated by a second author. Two quality items were discussed further following disagreement. One study (Levy et al., 2019) did not provide psychometric properties for the anxiety measure in the paper, but following further research, the measure had been found to be validated for use with an older adult population elsewhere. In these cases, it was agreed the item should be marked 'yes'. This included measures that had been validated for use with an older adult population after the date of publication.

The two raters also differed in how they interpreted the item regarding sample size justification, or power description. It was agreed if the number of participants recruited clearly indicated appropriate power, then the item should be marked 'yes' even if it is not specifically referred to in the text.

Bridging Chapter

This research portfolio aims to develop the understanding of the relationship between anxiety and depression, and aging stereotypes and attitudes towards aging. By exploring this question, the systematic review in the preceding chapter initially focused on examining the literature around anxiety and aging attitudes held by older adults.

This provided some evidence indicating that those with higher levels of anxiety are more likely to hold more negative attitudes towards aging. However, the research was limited both in terms of quality and quantity. A similar relationship between depression and negative attitudes towards aging has been found; those with depressive symptoms held more negative attitudes towards aging than those who had no symptoms. Similarly, correlational analyses demonstrated that higher depression scores are related to more negative attitudes towards aging (Westgate, Leddy & Laidlaw, 2018). There were comparable quality issues within this literature including lack of use of validated measures for attitudes towards aging, as well use of unsuitable measures for an older adult population.

These systematic reviews have methodological implications that can be drawn upon to guide how future research is implemented. The ensuing empirical study aims to address some of these methodological issues that were common across the studies included in the systematic review. This includes the use of reliable and valid measures suitable for an older adult population. The empirical study utilises the Geriatric Anxiety Inventory (GAI), a measure which is validated for use in both community and clinical older adult samples (Byrne et al., 2010, Cheung, Patrick,

Sullivan, & Cooray, 2007), as well as the Geriatric Depression Scale (GDS 5, Hoyl et al., 1999), which is also validated for use with older adults.

The systematic review also highlighted that aging stereotypes and attitudes towards aging are used interchangeably. These are similar, but distinct constructs that are defined in both the empirical paper and systematic review. Hypotheses with regards to the likely relationship between aging stereotypes and attitudes towards aging have been presented, and in order to explore this further, separate measures are utilised. The Attitudes towards Aging Questionnaire (AAQ; Laidlaw, Power, & Schmidt, 2007) is a psychometrically robust measure designed for use with older adults, aiming to examine three domains of attitudes towards aging. The Image of Aging scale (Levy, Kasl, & Gill, 2004) measures aging stereotypes with both a positive, and negative component as these have been found to be domain specific. Furthermore, this measure has good reliability and validity for use with older adults.

Finally, the samples were community based which limits clinical relevance. Comorbidity of anxiety and depression is common in older adults, particularly those seen in typical psychiatric clinics (King-Kallimanis, Gum & Kohn, 2009, Byers, Yaffe, Covinsky, Friedman & Bruce, 2010, Reynolds, Pietrzak, El-Gabalawy, Mackenzie, & Sareen, 2015). Reported frequencies of comorbid anxiety and depression range from 12% of persons with an anxiety disorder reporting major depression (Richie et al., 2004) to 65% (Kvaal et al., 2008). In order to produce research that has higher external validity and reflects clinical settings, this empirical study aimed to use reduced exclusion criteria meaning the findings are likely to hold high applicability to clinical settings.

The Influence of Depression and Anxiety on Ageing Stereotypes and Attitudes to Ageing among Older Adults

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Abstract

Objectives

There is a growing body of research that explores the relationship between mood and attitude towards aging and aging stereotypes. This study aimed to build on this by comparing attitudes towards aging, and aging stereotypes among a clinical sample of older adults (60+) with symptoms of anxiety and/or depression, to a non-clinical sample of older adults.

Method

Utilising a cross sectional approach, participants completed a battery of measures valid for use with older adults. The clinical sample consisted of 69 older adults who rated themselves above clinical cuts offs on the Geriatric Anxiety Inventory and/or Geriatric Depression Scale. The non-clinical sample consisted of 93 community dwelling older adults. Attitudes towards aging and aging stereotypes were assessed utilising the Attitudes towards Aging questionnaire, and the Image of Aging scale.

Results

The clinical group of older adults held significantly more negative attitudes towards aging compared to the non-clinical group. Consistent with previous research, regression analyses found that mood contributes most significantly to attitudes towards aging, with physical health variables explaining a smaller proportion of the variance in some domains. Aging stereotypes were less influenced by mood variables. Finally, attitudes towards aging and aging stereotypes were strongly correlated.

Discussion

Older adults with higher levels of anxiety and depression report more negative attitudes towards aging than those with sub clinical levels of anxiety and depression. This supports the hypothesis that attitudes towards aging are mood-state dependent. The theoretical and clinical implications from this research regarding the application of therapeutic interventions are discussed.

Keywords: Attitudes Towards Aging, Aging Stereotypes, Anxiety, Depression, Older adults,

Introduction

Many of us will be fortunate enough to experience the process of aging, and with an aging population worldwide this will include more people than ever before. The number of persons aged 80 and over is projected to triple, from 143 million in 2019 to 426 million in 2050 (UN, 2019). The majority of older adults when asked themselves have expressed positive attitudes to aging, with people aged between 65-79 reporting the highest level of well-being in comparison to the rest of the age span (Office of National Statistics; March, 2018). Despite this, in the United Kingdom (UK), as well as many other western societies, the prevailing social stereotype of aging focuses on negative experiences (Luo, Zhou, Jin, Newman & Liang 2013, Abrams, Eilola & Swift 2009, Abrams, Russel, Vauclair & Swift 2011, Kite, Stockdale, Whitley, & Johnson, 2005). Media portrayals of older adults often include the grumpy and forgetful grandpa, whilst cosmetic companies promote their products as 'anti-aging', reinforcing the idea that aging is 'bad'. These are just two examples of representations which can serve to form and reinforce aging stereotypes.

There is a growing body of literature that has explored the impact these negative social stereotypes of aging might have on older adult's wellbeing. It describes several types of age-based attitudes, with subtle differences that are important to first conceptualize here.

Aging stereotypes are people's beliefs and prejudices towards older adults and aging. The stereotype embodiment theory (Levy, 2009) suggests that it is difficult to avoid societal negative aging stereotypes which can be internalized from a young age and across the life span. These personal stereotypes become salient when they are activated later in life, acting then as self-stereotypes. This self-stereotype activation is less to do with chronological age, and more to do with when

an individual identifies with being ‘old’. Diehl and Werner-Wahl (2010) refer to this concept as awareness of age-related change (AARC). When somebody perceives their life has changed due to a consequence of aging, they become subjectively aware of their own personal experience of aging.

Experimental studies have provided further support for AARC, finding unconscious age stereotype primes that have led to age-stereotype congruent effects can be partially explained as occurring when the participants identify themselves as being old. This is further evidenced by younger participants following the same protocol experiencing weaker, reverse or even no effects (Levy, 2009, Hess, Hinson & Statham, 2004, Levy, Ashman & Dror, 2000).

Self-stereotypes contribute to the formation of attitudes towards aging. Attitudes towards aging are defined as people’s attitudes towards their own aging and experiences adjusting during this process. Individuals may hold both positive and negative attitudes towards aging, and these are thought to be domain specific (Laidlaw, 2015).

Research has found that when older adults internalize negative age stereotypes, and have more negative attitudes towards aging, their physical and mental wellbeing can be adversely affected (Levy, Slade, Kunkel, & Kasl, 2002; Levy, Zonderman, Slade,& Ferrucci, 2009; Bryant et al., 2012). One study found that participants with more positive attitudes towards their own aging experienced better physical health over two decades, and lived on average 7.5 years longer than those with more negative attitudes towards aging (Levy et al., 2002). It has also been found that those with more negative attitudes to aging were less likely to seek help for low mood, and less likely to engage in community and physical activities (Law et

al., 2010, Sanchez-Palacios, Traines-Torres, & Blanca-Mena, 2009).). Negative attitudes to aging may therefore act as self-fulfilling prophecies; where negative consequences of aging are perceived as inevitable and irreversible, impacting behaviour and developmental outcomes (Levy & Leifheit-Limson, 2009; Wurm, Warner, Ziegelmann, Wolff, & Schüz, 2013; Laidlaw & Kishita, 2015). In summary, the evidence suggests there are benefits for those with more positive attitudes, whereas those with negative attitudes may have a more harmful influence.

It has been suggested that mood difficulties may act as a prime for negative age stereotypes, which then lead to negative attitudes of aging (Shenkin et al., 2014). Individuals suffering with anxiety and depression experience an over estimation of threat as well as a cognitive negativity bias (Gotlib & Joorman, 2010). It is posited that people may therefore become hypervigilant to negative experiences of aging that are in line with their stereotypes, appraising these experiences as inevitable and reinforcing that old age is unpleasant and depressing (Laidlaw & Kishita 2015). For example, those with more negative attitudes saw depression as an inevitable consequence of aging (Quinn, Laidlaw, & Murray, 2009). Once this negative stereotype is activated, a vicious cycle ensues in which negative aging cognitions impact on negative affect and behaviour and vice versa. Therefore, it is likely that the relationship between mood and negative attitudes towards aging and aging stereotypes is reciprocal (Laidlaw, 2015). Addressing underlying stereotypes and attitudes could be an important consideration when working with mood therapeutically, particularly when clients identify their problems to be associated with their experience of aging.

Anxiety and Depression are common psychiatric disorders in late life. Between 1.2% to 15% of older adults experience clinical anxiety (Bryant, Jackson,

& Ames, 2008) and 1% to 16% experience major depression (Djernes, 2006). The reported frequencies of comorbid anxiety and depression are variable and range from 12% of persons with an anxiety disorder reporting major depression (Richie et al., 2004) to 65% (Kvaal et al., 2008). These prevalence and comorbidity rates highlight the importance of further understanding the relationship both depression and anxiety might have with negative age stereotypes and attitudes to aging, given the impact these can have on wellbeing.

There is a growing body of research that has sought to explore this relationship further. Older adults with depression, or symptoms of depression report more negative attitudes toward aging than those without (Chachamovich et al., 2008., Law et al., 2010., Lucas-Carrasco, Laidlaw, Gómez-Benito, Power, 2013., Shenkin et al., 2014, Freeman et al., 2016, Laidlaw et al., 2018). There is also some support that more negative attitudes are associated with increased anxiety (Shenkin et al., 2014, Freeman et al., 2016), as well as predicting the onset of anxiety disorders (Freeman et al., 2016, , Levy, Chung, Slade, Van Ness, & Pietrzak, 2019). The relationship between depression and anxiety and aging stereotypes, namely their views or prejudices of other older adults is underexplored in comparison, however negative age stereotypes have been associated with higher levels of anxiety, as well as death anxiety and aging anxiety (Depaolo et al., 2003, Valley et al., 2015).

This study aims to build on the body of research that explores the effects these attitudes towards aging have on older adult's mental health, particularly depression and anxiety. It will address the limitations in previous research by utilising psychometrically robust measures of depression and anxiety that are designed and have standardised psychometric properties for use with older adults. In order to increase clinical relevance, a clinically anxious and/or depressed sample will

be compared with a non-clinical sample of older adults. The study also seeks to address the gap in the literature exploring aging stereotypes and anxiety and depression. There has also, to our knowledge, been no research looking at how these attitudes to aging interact or relate to aging stereotypes. This study aims to explore these distinct but overlapping concepts.

Older people themselves are the only group to hold personal knowledge of adaptation to the aging process. Therefore, understanding their aging stereotypes and attitudes towards their own aging is key to better understanding the individual and shared experience of aging. The findings may then contribute to policy and research where aging is viewed in a more positive way which is consistent with the lived experience of aging literature.

Aims and Hypothesis

Consistent with theory and previous research conducted with non-clinical populations (Levy, 2009, Shenkin et al., 2014, Laidlaw, 2015) it is hypothesised that those with clinical anxiety and/or depression will hold more negative attitudes to aging on the three domains of the AAQ than the non-clinical sample. Similarly, those with clinical anxiety and/or depression will hold more negative aging stereotypes than the non-clinical sample.

Consistent with the stereotype embodiment theory (Levy 2009) and Laidlaw's (2015) model, it is also hypothesised that attitudes towards aging, and aging stereotypes will correlate; those with more negative attitudes towards aging will also hold more negative aging stereotypes.

Method

Overview

The present study employed a between subjects' cross-sectional design. Participants completed measures of attitudes to aging, aging stereotypes, anxiety, and depression.

Participants

Participants included a clinical and non-clinical sample of adults aged 60 years and older. This age boundary was chosen as the World Health Organisation (WHO) define older adults using this criteria (WHO, 2016). It is also the lowest age used in the measures included in the study pack, promoting consistency between the measures and the WHO's definition of older adults.

Those who scored over the determined threshold on either the 5-item Geriatric Depression Scale (GDS), or the Geriatric Anxiety Inventory (GAI) were included in the clinical sample; this ensured participants had clinical levels of depression and/or anxiety. Those who scored below the cut offs were included in the non-clinical sample.

Participants who could not read English, or were not deemed to have capacity were not invited to take part.

The final clinical sample was made up of 63 older adults (47 females, 16 males) aged between 60 and 82 (M= 66.32, SD=5.51). 52 of these older adults self-reported above the clinical cut off for anxiety, with 36 older adults self-reporting above the clinical cut off for depression. 38% of the clinical sample reported

comorbid anxiety and depression. The final non-clinical sample was made up of 93 older adults (56 female, 36 male) aged between 60 and 92 (*M*= 67.56, *SD*=7.37).

Measures

Attitudes towards Aging Questionnaire (AAQ; Laidlaw et al., 2007). The 24-item Attitudes to Aging Questionnaire is a psychometrically robust measure designed for use with older adults. It explores three domains of attitudes to aging; psychosocial loss, psychological growth, and physical change. Higher scores on each domain represent positive attitudes towards aging. Psychosocial loss includes items related to psychological and social losses related to aging, psychological growth relates to wisdom and growth and physical change includes items related to exercise and health.

Geriatric Anxiety Inventory (GAI; Pachana, Byrne, Siddle, & Koloski, 2007). This 20 item questionnaire has a Cronbach's alpha of .93, demonstrating appropriate reliability and validity for use with older adults (Pachana, Byrne, Siddle & Koloski, 2007). Due to the variable clinical cut off scores, with many studies reporting lower than the original recommended cut off scores (Johnco, Knight, Tadic, & Wuthrich., 2015, Cheung, Patrick, Sullivan, & Cooray, 2012), it was decided participants would be included in the clinical sample if they scored ≥5 on the GAI out of a range of 0-20.

Geriatric Depression Scale – 5 item (GDS 5, Hoyl et al., 1991). The 5-item version of the GDS was created from the 15-item GDS (GDS-15; Yesavage & Sheikh, 1986). The 5-item version has been found to be psychometrically robust for use with older adults, with an alpha coefficient of .80, and sensitivity of .94. Scores of ≥2 on the GDS are used as cut off scores out of a possible range of 0-5.

Significant agreement has been found between diagnosis of depression and the 5-item GDS (kappa = .81) (Hoyl et al., 1991, Rinaldi et al., 2003).

Image of Aging Scale (IoAS, Levy, Kasl & Gill, 2004). This scale emerged from nine conceptual categories, whereby one positive and one negative representative item from each of the nine categories was chosen to be included in the scale. These were; activity, appearance, cognition, death, dependence, personality, physical health, relationships, and will to live. Participants are asked to rate each word as to how well it matches with their image of old people in general. This results in scores on the positive and negative age stereotype components ranging from 0-54.

Procedure

The older adult community mental health team in Cambridge and Peterborough NHS Foundation Trust (CPFT) were approached and agreed to recruit for the study. The team were provided with the inclusion/exclusion criteria. Using their clinical judgement, clinicians invited eligible participants to partake and provided them with an information sheet and contact details of the chief investigator should there be further questions. Those who wished to participate were then provided with a paper study pack containing demographic questions (age, gender, relationship status, ethnicity, country residing, health circumstances), consent forms, and the four questionnaires (AAQ, GAI, GDS-5, IoAS) which they completed in their own time. Alternatively, participants were given the option to complete the study pack online.

Alongside this, the study's dedicated Facebook page and Twitter account advertised for participants in the community aged over 60 years old. Potential

participants were provided with a link which allowed them to consent and complete the online version of the study pack.

Ethics

Ethical approval was granted by the London Hampstead Ethics committee and the CPFT research team. Responses collected as part of the study remained confidential and stored in accordance with the General Data Protection Regulation (GDPR). Participants provided formal consent and were advised of their right to withdraw up to the point of submission of responses. They were made aware they were not obliged to participate. Should completing the questionnaire cause any distress, participants were advised to discuss further with their clinician if applicable, or with their GP. Furthermore, the information sheet provided contact details for the Samaritans. Unfortunately, it was not possible to respond individually to those who scored above thresholds on clinical measures due to anonymity.

Data Analysis

The clinical and non-clinical group were compared on the three domains of the AAQ and IoAS measure using Multivariate Analysis of Variance (MANOVA). As there are unequal group sizes, and homogeneity of covariances had been met using a Box's test, then Pillai's trace test statistic was chosen as the most accurate (Field, 2009).

Separate univariate ANOVAs were conducted to test the three domains of the AAQ and positive and negative aging stereotypes as assessed by the IoAS. Effect sizes were also reported using partial eta squared, this can be benchmarked against Cohen's (1969) suggested criteria of small, medium and large effects and is calculated from inferential statistics (Richardson, 2011). As multiple hypothesis tests

were completed, the Bonferroni correction was used to reduce the possibility of type I error, resulting in adjusted alpha levels of .01 (.05/5).

In order to explore further the contribution both anxiety and depression have in predicting attitudes towards aging and aging stereotypes, multiple linear regressions were calculated incorporating both groups in order to achieve adequate power. The stepwise method was used to predict each of the three domains on the AAQ, and two domains of IoAS, based on GAI scores, GDS scores, gender, age, general health, satisfaction with aging, and number of physical health problems. Predictors were included that have been found to influence attitudes toward aging and aging stereotypes in previous research (Shenkin & Mead, 2014, Gluth, Ebner & Schmiedek, 2010, Antonucci, Blieszner, & Denmark, 2010, Low, Molzahn, & Schopflocher, 2013).

Finally, in order to examine the associations between AAQ and IoAS scores, bivariate correlations were performed amongst these variables using conservative p values ($p < .001$). Data was analysed using SPSS (version 25).

Results

Sample Characteristics

The characteristics of each sample is outlined in Table 5. In order to ascertain significant differences between the two groups, t-tests, or Chi-squared tests were used. This indicated differences between the groups on a self-rated score of satisfaction with aging experiences more generally.

Preliminary analysis explored missing data. There was minimal missing data (0.58%). Little's (1988) Missing Completely at Random test (MCAR) was not significant ($x^2 = 1961.31, df= 1967, p=.53$).) indicating data was missing at random, subsequently missing data was addressed by using item mean imputation. Data largely met the assumptions for statistical testing. The homogeneity of variance assumption was violated for one domain of the AAQ (Physical Change), and therefore equal variances could not be assumed for this variable.

Table 5

Characteristics of the sample

Characteristic	Clinical group (n=63) *N (%) or M (SD)*	Non-clinical group (n=93) *N (%) or M (SD)*	*t or* x^2 value	*p* value
Age	66.32 (5.51)	67.56 (7.37)	1.14	.257
Gender			3.16	.075
Male	16 (25.4)	36 (39.1)		
Female	47 (74.6)	56 (60.9)		
Ethnicity			4.66	.97
White: British	58 (92)	90 (97.8)		
White: Irish	3 (4.8)	0		
Any other white background	2 (3.2)	2 (2.2)		
Number of reported health conditions			3.68	.452
0	38 (60.3)	65 (69.9)		
1	15 (23.8)	16 (17.2)		
2	6 (9.5)	10 (10.8)		
3	3 (4.8)	2 (2.2)		
4	1 (1.6)	0		
Satisfaction with aging experiences generally			6.75	.009*
Yes	46 (73)	82 (89.1)		
No	17 (27)	10 (10.9)		
Are you generally healthy?			2.59	.108
Yes	52 (82.5)	83 (91.2)		
No	11 (17.5)	8 (8.8)		
Relationship Status			2.82	.728
Single	11 (17.5)	18 (19.6)		
Married	43 (68.3)	64 (69.6)		
Co-habiting	3 (4.8)	6 (6.5)		
Divorced	2 (3.2)	1 (1.1)		
Widowed	3 (4.8)	3 (3.3)		
Prefer not to say	1 (1.6)	0		
GDS	1.76 (1.58)	0.37 (0.55)		
GAI	8.83 (5.47)	.94 (1.22)		

Note. *Significant at the .05 level

Main Results

Using Pillai's trace, there was significant effect of anxiety and depression on the IoAS scale, and the attitudes towards aging domains; psychological growth, psychosocial loss and physical change, V=0.18, F(5, 150) = 6.525, p>.001. Results of the univariate ANOVA are outlined in Table 6.

Hypothesis one: Those with clinical anxiety and/or depression will hold more negative attitudes to aging than in the non-clinical sample.

This indicated that scores on the psychological growth domain were significantly higher for the non-clinical group compared to the clinical group, and a medium to large effect size was found. For the psychosocial loss domain, scores were significantly higher for the non-clinical group compared to the clinical group, and a large effect size was found. Finally, the physical change domain scores were

Table 6

ANOVA Results

Measure	Clinical Sample mean (*SD*)	Non-Clinical Sample mean (*SD*)	*F* value (df)	*p* value	Effect size (η_p^2)
AAQ					
Psychological Growth	24.22 (4.08)	26.54 (3.29)	15.32 (1,155)	<.001	.090
Psychological Loss	25.33 (5.44)	29.49 (4.62)	26.35 (1,155)	<.001	.146
Physical Change	30.38 (6.63)	34.30 (5.43)	16.34 (1,155)	<.001	.096
Image of Aging					
Positive Age Stereotypes	31.11 (7.90)	33.45 (7.46)	1.591 (1,155)	.209	.010
Negative Age Stereotypes	24.67 (10.35)	22.75 (8.51)	3.522 (1,155)	.062	.022

Note. SD = standardised deviation, df = degrees of freedom, η_p^2 = Partial eta squared

significantly higher for the non-clinical group compared to the clinical group, and a medium to large effect size was found.

Hypothesis two: Those with clinical anxiety and/or depression will hold more negative aging stereotypes than in the non-clinical sample

The positive age stereotype means were slightly higher in the non-clinical group compared to the clinical group, although a small effect size was found, this difference did not reach statistical significance. Similarly, the negative age stereotype means were slightly higher in the clinical group compared to the non-clinical group, with a small effect size found.

Hypothesis three: Attitudes towards aging and aging stereotypes will correlate: those with more negative attitudes towards aging will also hold more negative aging stereotypes.

Results are presented in Table 7. The Pearson correlation indicated a significant positive association between scores on the positive age stereotype component of the IoAS and the psychosocial loss domain of the AAQ, and a significant negative association between scores on the negative age stereotype component of the IoAS and the psychosocial loss domain.

Results of the Spearman correlation identified a significant positive association between scores on the positive age stereotype component of the IoAS and the psychological growth domain of the AAQ, and between the positive age stereotype scores and the physical change domain of the AAQ. However, there was no significant association between the negative age stereotype component of the image of aging scale and the psychological growth domain of the AAQ or the physical domain of the AAQ.

Table 7

Correlations between measures

Measure	1	2	3	4	5
1. Image of Aging scale - negative	-	-	-	-	-
2. Image of Aging scale - positive	-.30**	-	-	-	-
3. Psychological Growth	-.15	.37**	-	-	-
4. Psychosocial loss	-.32**	.30**	.38**	-	-
5. Physical Change	-.12	.29**	.47**	.50**	-

Note. **correlation significant at the .01 level

Multiple Regressions

Data largely met assumptions for multiple regression statistics. However, homoscedasticity had been violated in the positive stereotype domain of the IoAS and physical change domain of the AAQ.

Attitudes towards Aging

Results of the multiple regressions are outlined in Table 8. This indicated that one predictor, anxiety scores, explained 13% of the variance on psychological growth scores. This was the only significant predictor of psychological growth.

Three predictors; depression scores, anxiety scores, and satisfaction with experiences of aging explained 36% of the variance on psychosocial loss scores.

Four predictors; general health, anxiety scores, satisfaction with experiences of aging and depression scores explained 35% of the variance on physical change scores.

Table 8

Regression analysis for the Psychological Growth domain

Variable	*B*	*β*	*t*	*p*
(Constant)	26.585		73.31	<.001
GAI	-.26	-.37	-4.90	<.001

Note. R^2 adjusted = .13. *B* = unstandardised coefficient. *β* = Beta Coefficients.

Regression analysis for the Psychosocial loss domain

Variable	*B*	*β*	*t*	*p*
(Constant)	32.913		28.40	<.001
GDS	-1.77	-.43	-5.37	<.001
GAI	-.19	-.19	-2.43	.016
Satisfaction with aging	-2.30	-.16	2.38	.018

Note. R^2 adjusted = .36. *B* = unstandardised coefficient. *β* = Beta Coefficients.

Regression analysis for the Physical Change domain

Variable	*B*	*β*	*t*	*p*
(Constant)	45.388		24.84	<.001
General Health	-7.06	-.38	-5.54	<.001
GAI	-.26	-.22	-2.72	.007
Satisfaction with aging	-2.52	-.15	-2.18	.032
GDS	.83	-.17	2.10	.038

Note. R^2 adjusted = .35. *B* = unstandardised coefficient. *β* = Beta Coefficients.

Aging Stereotypes

The results of the regression are outlined in Table 9. Depression scores explained just 3.5% of the variance in positive stereotype scores on the IoAS scale. This was the only significant predictor in this domain. There were no significant predictors found for the negative aging stereotypes scores on the IoAS scale.

Table 9

Regression Analysis for the Image of Aging – Positive scale

Variable	*B*	*β*	*t*	*p*
(Constant)	33.301		44.18	<.001
GDS	1.20	-.20	-2.54	.012

Note. R^2 adjusted = .035. *B* = unstandardised coefficient. *β* = Beta Coefficients.

Discussion

This study compared a clinically anxious and/or depressed sample of older adults to a non-clinical sample of older adults on measures of aging stereotypes and attitudes towards aging.

Attitudes towards Aging

The first aim of the study was to explore whether the domains of attitudes towards aging differed between the two groups. The results indicated that the clinical group of older adults held significantly more negative attitudes to aging compared to the non-clinical group of older adults demonstrating medium to large effect sizes across the domains. This provides support for the hypothesis that depression and anxiety are associated with more negative attitudes to aging (Chachamovich et al., 2008, Law et al., 2010, Lucas-Carrasco et al., 2013, Shenkin et al., 2014, Freeman et al., 2016, Laidlaw et al., 2018, Ramirez & Paacios, 2016).

Regression analyses' widely supported previous findings that mood contributes most significantly in attitudes to aging, with demographic and physical variables explaining a small proportion of variance (Laidlaw et al., 2018, Lucas-Carrasco et al., 2013). In terms of the psychosocial loss domain, depression, anxiety and satisfaction with aging experiences were found to be associated with this domain. This may be partially explained by the cognitive theory of anxiety which

postulates a bias towards the over-estimation of threat, and/or the underestimation of ability to cope (Kennerly, et al., 2017). The psychosocial loss domain asks questions around losing physical independence and exclusion from society, these aspects threaten an individual's autonomy and imply a lack of coping in old age. The cognitive theory of depression also supports this finding, which proposes that negative automatic thoughts most likely focus on loss (Beck, 1976), given that the psychosocial loss domain asks questions directly about loss, this finding was expected.

The results revealed the psychological growth was also associated with anxiety, whilst depression was not a unique predictor. Anxiety only accounted for 14% of the variance indicating there are other important factors that account for the variation in this domain. Other studies have found this domain to be less influenced by mood, it has been suggested it is distinct as it includes items around wisdom, growth and generativity (Chachamovich, 2008, Laidlaw et al., 2018, Lucas-Carrasco, et al 2013). The results of this study contrast with these findings however, as it was found that the clinical group had significantly more negative attitudes towards aging than the non-clinical group in this domain, indicating mood is associated with more negative attitudes related to psychological growth.

Finally, in relation to the physical change domain, significant predictors included general health, anxiety, depression, and satisfaction with aging experiences. This finding aligns with the physical change domain items that relate to physical health, exercise, and the experience of aging itself. Interestingly, there were no differences between the samples in terms of number of physical health difficulties, or whether they considered themselves generally healthy. This is surprising given that evidence consistently demonstrates those with a long-term health conditions are 2-3

times more likely to develop mental health difficulties than the general population (Kings Fund, 2012). Number of physical health difficulties was not a significant predictor implying that negative attitudes towards physical health changes is more about the subjective rating of physical health rather than objective number of health difficulties. However, these results are interpreted with caution given the violation of homoscedasticity, questioning generalization beyond the sample.

Aging Stereotypes

The second aim of the study was to explore the relationship between depression and anxiety and aging stereotypes. The results indicated that the clinical group of older adults had slightly more negative aging stereotypes in comparison to the non-clinical group, and similarly, those in non-clinical group had slightly more positive age stereotypes in comparison to the clinical group. These differences did not reach significance; however, and therefore conclusions cannot be made. The lack of significant associations and minimal variance depression accounts for implies that there are other important factors contributing to positive and negative aging stereotypes that were not measured in this study.

These findings do not appear to support the theory that mood acts as a prime for negative aging stereotypes (Laidlaw 2015). However, it is posited that the lack of significance found could reflect the underlying construct the IoAS is measuring. The scale reflects participant's positive and negative views about old people, other than themselves, which in the literature is termed personal aging stereotypes (Fernández-Ballesteros et al., 2017). These are pervasive and held long term. The stereotype embodiment theory (Levy, 2009) posits that it is when these personal stereotypes become salient that they become self-stereotypes, and it is these self-stereotypes that

acts as a predisposing vulnerability for formation of negative attitudes towards their own aging. Aging stereotypes may therefore not be significantly predicted by mood until they become self-stereotypes, a construct not measured in this study.

The Relationship Between Attitudes Towards Aging and Aging Stereotypes

Finally, the study aimed to explore the relationship between attitudes towards aging and aging stereotypes. This correlation was significant across the three domains of the AAQ and positive aging stereotypes, implying that those with more positive age stereotypes also held more positive attitudes towards aging. Negative age stereotypes also significantly correlated with psychosocial loss domain of the AAQ, indicating those with more negative age stereotypes also held more negative attitudes towards aging in this domain. It is not possible within the scope of this study to ascertain if aging stereotypes lead to attitudes towards aging as Laidlaw's (2015) model suggests, but these findings lend support to the related nature of these two age-based attitudes. It is possible this relationship could be strengthened if the aging stereotypes were self-relevant.

The clinical and non-clinical group differed on a self-rated question of whether participants were satisfied with their experiences of aging generally. Older adults in the non-clinical were more satisfied with their experiences of aging than those in the clinical group. Satisfaction with aging was also associated with the psychosocial loss and physical change domains of the AAQ. It is not possible within the scope of this study to ascertain whether participants in the clinical condition were not satisfied with their experiences of aging because of their mood, or whether their mood has been affected by their dissatisfaction with their aging experiences. Further research could be useful to explore the direction and quality of this relationship

further. Despite this difference between groups however, the majority of the participants in the clinical group (73%) did report satisfaction with their aging experiences. This could be seen to support the more positive data within the lived experience of aging literature.

Limitations and Future Research

The study has limitations that are important to consider. Causal relationships cannot be ascertained due to the cross-sectional design. We are therefore unable to make any inferences about whether mood contributes to attitudes to aging, or vice versa. We are also unable to make inferences about the temporal relationship between aging stereotypes and attitudes towards aging. There are also other potential confounding variables there were not considered in this study, such as personality factors that may help to explain differences in individual attitudes towards aging. Longitudinal research in this area would be beneficial to address these limitations and allow further consideration of more stable trait factors, such as personality.

The clinical sample was taken from both clinical services, and online through the community. Although participants in the community sample were identified through scores above the clinical cuts off on the validated measures to be included, a diagnosis was not agreed by a qualified clinician. Self-report measures can also result in self-report biases. This might affect the validity of clinical sample as participants were not diagnostically confirmed.

The representativeness of the sample is limited given the lack of diversity (95% white British). Selection bias is also possible given the differing social status' and cultural differences that have been found in those who chose to take part in studies compared to those who do not (Hammer, de Prel, & Blattner, 2009).

Similarly, participants were required to be computer literate. Research has found those who do not use the internet are more likely to be older, from lower socio-economic groups and ethnic minorities (Choi & DiNitto, 2013, Yoon, Jang, Vaughan, & Garcia, 2020). Associations have also been found between internet use and better overall mental health (Heo et al., 2015) resulting in further possible selection biases. These biases reduce the generalizability of the results to the wider population.

The majority of the research, including this study, utilises a positive-negative binary of aging stereotypes. It is possible this doesn't adequately cover the complexity of aging stereotypes. Exploring these domains further, as well as including a measure of subjective aging in order make inferences about the self-relevance of aging stereotypes would be beneficial in understanding the role of mood with aging stereotypes further.

Finally, qualitative research that explores older adult's attitudes towards aging, in their own words, would enrich this area of research.

Clinical Implications

Despite the limitations of the study, it does provide some interesting insights. The study has provided further support that those with clinical anxiety and depression are likely to hold more negative attitudes towards aging in comparison to a non-clinical population. This is relevant when considering the assessment and treatment of older adults with these presentations given the negative effect these attitudes have been found to have on help-seeking behaviour and health outcomes (Quinn, Laidlaw, & Murray, 2009; Law et al.,. 2010).

Laidlaw's (2015) model posits that a vicious cycle can occur whereby negative aging cognitions impact behaviour and negative affect. This may leave both the patient and clinician feeling hopeless about the possibility of change. Cognitive Behavioural Therapy (CBT) is the recommended treatment for anxiety and depression in older adults (Laidlaw & Kishita, 2015), a key aspect of CBT is cognitive testing (Beck, Emery & Greenberg, 1985). Exploring and challenging negative aging cognitions as non-normative, particularly those related psychosocial loss and physical change could break this vicious cycle. Another key aspect of CBT considers behaviour, promoting social inclusion and physical exercise could prove worthwhile to challenge negative attitudes to aging. Viewing these attitudes towards aging as mood state dependent and challenging these attitudes as treatment targets could result in an improvement in symptoms.

Previous research has shown that providing positive information about aging influences attitudes towards aging (Fernández-Ballesteros et al., 2013), and the results of this study have found those with more positive aging stereotypes held more positive attitudes towards aging. Therefore, there is an important role for psychoeducation around aging, for both patients and carers. As clinicians, and as a society we should be combatting these negative age stereotypes by promoting the positive data from the aging literature, encouraging involvement in modifiable predictors of successful aging, such as social participation, and creating a society where people look forward to growing old, and have optimal outcomes once they get there.

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Extended Methodology

This chapter provides additional information regarding the methodology, including details about the participants, sample size calculations, recruitment and procedure, measures, ethical considerations, and amendments.

Participants

Inclusion criteria

Participants were required to be over 60 years of age to participate; this age boundary was chosen as the World Health Organisation (WHO) define older adults using this criterion (WHO, 2016). It is also the lowest age used in the measures included in the study pack, promoting consistency between the measures and the WHO's definition of older adults.

Clinicians screening for potential participants were advised the anxiety, or depression the older adults were experiencing could be consistent with any type of disorder associated with these symptoms. In order to be included in the clinical sample, participants were required to score above the determined threshold on the Geriatric Anxiety Inventory (GAI) or Geriatric Depression Scale (GDS). Anxiety disorder and Depression are common psychiatric problems in late life, and comorbidity of anxiety and depression is common in older adults (King-Kallimanis, Gum & Kohn, 2009, Byers, Yaffe, Covinsky, Friedman & Bruce, 2010, Reynolds, Pietrzak, El-Gabalawy, Mackenzie, & Sareen, 2015). As this study aimed to utilise a clinical sample from a psychiatric population, where people often do have mixed anxiety and depression presentations, including both diagnoses in this study means the external validity is increased to real world clinical settings.

Participants who did not score above the thresholds were included in the non-clinical sample.

Exclusion criteria

People were excluded if they were deemed to lack capacity to partake in the study by their clinician. A lack of fluency in English also excluded people from participating. It was beyond the budget of this study to offer translation facilities or interpreters. Further to this, not all the psychological measures used have been validated in different languages, therefore it would reduce the validity of the outcome if the documents were translated.

Sample Size

In order to ascertain appropriate sample size needed, effects sizes from a previous study were used which examined attitudes towards aging and depression (Westgate, Leddy & Laidlaw, 2017, in preparation for submission). Therefore, using a medium-large effect size, power of .8, and a p value of .05, G Power (Erdfelder, Faul, & Buchner, 1996) calculated that in order to compare differences between groups, a sample size of 51 would be required in both the clinical and non-clinical sample. In order to complete a multiple regression, a widely accepted rule is 50+8m (m being the number of independent variables, Green, 1991). For seven predictors, this would require 106 participants. The total sample size was 156 (63 clinical, 93 non-clinical).

Recruitment and Procedure

In order to recruit the clinical sample, different avenues of recruitment were utilised to optimise sample sizes. NHS secondary care services were approached initially via email to ascertain if they would be willing to facilitate recruitment for

the study. This included older adult community services in Cambridgeshire and Peterborough NHS Foundation Trust (CPFT), and East London NHS Foundation Trust (ELFT). Unfortunately, due to organisational and staff changes, ELFT were unable to facilitate recruitment. However, following a meeting with the primary author and CPFT Older Adult's Community Mental Health team in which the study requirements were outlined, this service agreed to facilitate recruitment. CPFT Research and Development department were then approached and agreed for the service to act as a recruitment site. The team's clinical psychologist was appointed as the lead clinician who kept the author up to date with recruitment.

A poster was designed to advertise the study in services (See Appendix C). Clinicians were asked to identify appropriate participants according to the inclusion and exclusion criteria outlined, and subsequently provided them with an information sheet (See Appendix D). It was advised that potential participants be given at least 24 hours to consider the information and their participation. Providing participants were willing to engage after this period, a consent form was then completed with their clinician and study packs provided with stamped addressed envelopes for return. If preferable, participants could complete the study packs online.

The study packs contained: The information sheet (see Appendix D and E), consent form to partake (see Appendix F and G), consent form to be provided with a summary of the findings of the study and entered into the draw to win £25 amazon vouchers (Appendix H), a demographic questionnaire (Appendix I), the Geriatric Depression Scale-5 (GDS-5, Appendix J), the Geriatric Anxiety scale (GAI, Appendix K), the Attitudes towards Aging Questionnaire (AAQ, Appendix L), and the Image of Aging scale (Appendix M). The online and paper version of the study packs were identical; however, aspects of the information sheets were changed for

the clinical service to ensure participants were aware their treatment would not be affected should they chose not to participate. Participants completed study packs in their own time. It was estimated the study packs would take around 15-25 minutes to complete. This method of recruitment took place over three months. Unfortunately, this method of recruitment proved difficult and only three participants completed paper study packs. It is possible more completed the study pack online although it is not possible to identify these participants through the online platform.

Alongside this, participants were also recruited online via Facebook and Twitter. A dedicated Facebook page and Twitter account were set up which included information about the study and a link to the online study pack (See Appendix N for examples). The online platform used to create the online study pack, Bristol Online Survey is compliant with the GDPR. It was advertised towards those over 60 years of age willing to share their opinions on aging. Local community pages and appropriate online forums such as 'Age UK' and 'Positive Aging' were contacted to retweet the advertisement. Unfortunately, it was not possible to ensure the minimum period of 24 hours was utilised to consider the information sheet and their participation, however potential participants were given the chief investigator's details should they have any questions. Participants were then directed to the consent form, which they were required to click to confirm they were providing informed consent. This method of recruitment was successful, and 155 participants were recruited online.

Those who opted into the prize draw were assigned numbers, and one person was randomly selected and contacted using the details provided.

Measures

Geriatric Anxiety Inventory (GAI; Pachana, Byrne, Siddle, & Koloski, 2007). This 20-item questionnaire was chosen as its psychometric properties have been evaluated with older adults in both community samples (Byrne et al., 2010) and clinical samples (Cheung, Patrick, Sullivan, & Cooray, 2007) which makes it appropriate for use in this study. Participants are asked whether they 'agree', or 'disagree' with 20 items assessing anxiety symptoms. It has a Cronbach's alpha of 0.93, demonstrating appropriate reliability and validity (Pachana et al., 2007). It also has a reduced emphasis on somatic symptoms in order to reduce overlap with physical health difficulties in older adults.

During the development of the GAI, it was recommended that scores of 9 and above determined anxiety disorders in older adults (Pachana et al., 2007). However, the clinical sample was small in this study (N=19) with only half of these having a diagnosis of Generalised Anxiety Disorder (GAD). Variable cut off scores have been found in attempts to validate the GAI since, with many reporting much lower scores ranging from 2/3 (Cheung et al., 2012) in a physical health setting, to 5/6 in a healthy population (Matheson et al., 2012). As this study included people from clinical services, where physical health difficulties are high, but also included people living in the community, it was decided a cut off score of 5 seemed more suitable for the current study as this would be more representative of the sample recruited. This is higher than the average GAI scores found within non-clinical samples (Johnco, Knight, Tadic, & Wuthrich, 2015, Pachana et al., 2007). The mean GAI score in the final clinical sample was 8.83 (5.47), the mean GAI score in the final non-clinical sample was 0.94 (1.22). This scale is freely available for the purposes of this research.

Geriatric Depression Scale – 5 item (GDS 5, Hoyl et al., 1999). The 5-item version of the GDS was created from the 15-item GDS (GDS-15; Yesavage & Sheikh, 1986), which was created from the original 30 item version (GDS-30; Yesavage, et al., 1983). The 5-item version has been found to be psychometrically robust for use with older adults, with an alpha coefficient of 0.80, sensitivity of 0.94, and specificity of 0.81 (Hoyl et al., 1999, Rinaldi et al., 2003). The shorter version was chosen for use in this study as it reduced response burden whilst maintaining psychometric integrity as the psychometric properties of the 5-item are similar to that of the 15-item. Scores of ≥2 on the GDS are recommended and used as cut off scores out of a possible range of 0-5. The mean GDS score in the final clinical sample was 1.76 (1.58), and mean GDS score in the final non-clinical sample was 0.37 (0.55). The mean GDS score was lower than the cut off due to including both anxiety and depression in the clinical sample. This scale is freely available.

Attitudes towards Aging Questionnaire (AAQ; Laidlaw, Power, & Schmidt, 2007). The 24-item Attitudes to Aging Questionnaire is a psychometrically robust measure designed for use with older adults (Laidlaw et al., 2007). It aims to examine both subjective experience and attitudes towards personal aging. It explores three domains of attitudes to aging; psychological growth, psychosocial loss, and physical change, and the reported reliability statistics for each of these subscales are 0.81, 0.81, and 0.74 (Laidlaw et al., 2007). Each item is scored on a 5 point Likert scale from strongly agree, to strongly disagree, or not at all true, to extremely true, totalling subscale scores ranging between 8 and 40. Subscale scores will be calculated in this study as total scores for the AAQ have been found not to be meaningful (Laidlaw, Kishita, Shenkin, & Power, 2018). The chief investigator gained permission from the authors to use this measure.

Image of Aging Scale (Levy, Kasl & Gill, 2004). This scale has good reliability and validity, with Cronbach alpha of .84 for the positive age-stereotype component, and .82 for the negative age-stereotype component, as well as good test-retest reliability with .92 for the positive component, and .79 for the negative component (Levy et al., 2004). Participants rate how much words match the images or pictures that participants have when thinking of old people in general which can measure stereotypes that might exist. This is rated on a 7-point Likert scale from 'does not match my image', to 'completely matches my image'. The scale includes nine conceptual categories including a positive and negative related word in each, including activity, appearance, cognition, death, dependence, personality, physical health, relationships, and will to live. The chief investigator gained permission from the authors to use this measure.

Ethical Considerations

Ethical approval was granted by the London Hampstead Ethics Committee. Local approval was then sought and granted by the CPFT Research and Development team. The research followed the guidance provided by the British Psychological Society (BPS; 2014) on the Code of Human Research Ethics (see Appendix O).

Consent. For participants to consent freely, on the basis of adequate information, participants were provided with full details of the study via an information sheet. The chief investigators details were provided to enable participants to ask questions. The chief investigator did not receive any questions throughout the recruitment period. All participants were required to provide formal consent which was indicated by completion of a consent form.

Participants were also required to consent to entering the prize draw and receiving a summary of the study findings as contact details were required. Once this information was provided, the contact details were permanently deleted.

Confidentiality. General Data Protection Regulation (GDPR) was adhered too when managing research data. The information gathered was kept confidential; and not shared with the clinical teams. In line with the University of East Anglia policy, all research responses received through the post were sent to UEA, and stored in locked cabinets, only accessible by research supervisors, who are the custodians of the data. After ten years, all data will be destroyed. All patient identifiable information will be securely destroyed upon close of the study.

The online platform used to create the online study pack, Bristol Online Survey, comply with the GDPR, they do not disclose or otherwise distribute personal information or survey data. They also confirm they delete the data permanently once the account has been deleted, and do not track IP addresses or log-in credentials. Questionnaire data was downloaded from 'Bristol Online Survey' and stored on an encrypted memory stick, questionnaire data from the paper study packs was manually inputted. Those who scored above the clinical thresholds on the measures were separated to clarify the clinical and non-clinical samples. This was then analysed on the primary author's personal laptop. The data was not stored on the personal laptop hard drive, but on the encrypted memory sticks or accessed via the university server, which is encrypted, and password protected. The consent forms with any identifiable information were separated from the questionnaire data and stored in a locked cabinet.

Coercion. Issues of coercion were managed by ensuring that participants were made aware that their participation in the study was entirely voluntary, and that their decision would not affect the care they received if they were recruited from clinical services. They were informed that they may withdraw from the study during completion without having to give a reason. As the data provided remained anonymous, it was not be possible to identify individual responses should they wish to withdraw beyond the point of completion. This was made clear in the information sheet and consent form.

Deception. All participants were fully informed about the research process in the information sheet, and therefore no deception occurred.

Distress. This study was unlikely to cause harm or unduly distress participants as a result of their participation. The risk of participating in mental health research is considered low and negative reactions are uncommon (Jorm, Kelly, & Morgan 2007). The questionnaires are routinely used in clinical practice and are considered not to have significant negative impact. However, should the study have caused any subjective distress, or distress that may be indicated on a questionnaire, appropriate contact details for support were provided from initial entry into the study through the information sheet. For those recruited online, participants were advised to contact their GP for further support, as well as provided with details for the Samaritans. If participants were recruited from a clinical service, they were advised to discuss further with their clinician. Since recruitment closed in October 2019, there have been no reports of participants experiencing any distress from participating in this study. Unfortunately, it was not possible to respond to individual participants who scored over the threshold on clinical measures due to anonymity in how the data was collected.

Amendments

A substantial amendment was made to the study in relation to the use of the Attitudes to Aging Questionnaire. The protocol specified that the short form version of the AAQ (AAQ-SF, Laidlaw et al.,. 2018) was going to be used due to the balance of brevity and internal consistency. However, in the study packs the original 24-item Attitudes to Aging Questionnaire (AAQ; Laidlaw et al., 2007) was used. This consists of 24 questions, 12 of which are the questions from the AAQ-SF. This is a more commonly used measure in research studies and has good psychometric properties for use with older adults as mentioned above. The information sheets did not require amendment as it did not specify what measures were used, and the time taken reflected the time including the original version of the AAQ. Therefore, only amendment to the protocol was required. The service was kept informed and the chief investigator was advised recruitment could continue during investigation. This amendment achieved ethical approval (see Appendix P for correspondence).

Patient and Public Involvement (PPI)

Service users were consulted on the wording of study materials including the information sheet and consent form to ensure readability. All feedback was considered, and documents amended. This included simplifying wording and providing another contact should participants wish to contact somebody other than the chief investigator regarding the research.

Extended Results Section

This chapter provides further information regarding the results, including missing data analyses and assumption testing. Additional exploratory analyses are also conducted.

Missing data

Missing data analyses were conducted for the whole sample. Missing data was deemed 'Missing Completely at Random (MCAR)' as Little's (1988) MCAR test was not significant ($x2 = 1961.31$, $df= 1967$, $p=.53$). There did not appear to be any differences between the clinical group and non-clinical group regarding missing data. The percentage of missing data was highest for the IoAS, with missing data ranging from 0-1.9% for individual items. Missing data for items on the AAQ ranged from 0-1.3%, and from 0-1.3% for the GAI. There was no missing data for items on the GDS. In terms of individual participant responses, 35 cases had missing data, percentage of missing data for individual cases ranged from 0-6%, with the average percentage equalling 2.20%. There is no defined cut off in the literature regarding acceptable percentages of missing data, however some have advised that 5% of missing data or less is inconsequential (Schafer, 1999), and that bias is more likely to be introduced when more than 10% is missing (Bennett, 2001). Other studies deem 15-20% missing rate as common in psychological studies (Enders, 2003). Due to the low levels of missing data in comparison in this sample and meeting the MCAR assumption, it was deemed appropriate to address this by item mean imputation as this is unlikely to introduce bias (Dong & Peng, 2013). Table 10 illustrates the means and standard deviations of the main measures both before and after imputation. These scores were comparable before and after imputation, suggesting that it did not bias the dataset.

Table 10

Means of the sample before and after imputation

Measure	Clinical Sample Mean (*SD*)		Non-Clinical Sample Mean *(SD)*	
	Before Imputation	After Imputation	Before Imputation	After Imputation
Image of Aging Scale AAQ	60.02 (14.69)	60.14 (15.01)	64.37 (12.72)	64.22 (12.65)
Psychological Growth	24.20 (4.20)	24.22 (4.08)	26.45 (3.34)	26.54 (3.29)
Psychological Loss	25.24 (5.56)	25.33 (5.44)	29.47 (4.64)	29.49(4.62)
Physical Change	30.24 (6.82)	30.38 (6.63)	34.35 (5.47)	34.30 (5.43)

Note. SD = standardised deviation

Assumption testing

Assumptions for parametric statistics, specifically MANOVA, correlations and multiple linear regressions, were checked. For MANOVA, this included whether the dependant variables have multivariate normality within groups, homogeneity of variance in each group, and that the correlation between any two dependent variables is the same in all groups. This assumption is examined by testing whether the population variance-covariance matrices of the different groups in the analysis are equal. The data must also be independent (Field, 2009). For multiple linear regressions, the whole sample was checked for independence of residuals, linearity, multicollinearity, and homoscedasticity.

Normal Distribution

Skewness and kurtosis statistics were undertaken to assess for significant violations of normality (see Table 11). Histograms and P-P plots were also visually inspected and appeared to suggest normality. Tests of normality provided support

that the data in the clinical sample is normally distributed on most variables of interest, with the exception of the Psychological Growth domain of the AAQ which was found to be positively skewed. In the non-clinical sample, data was positive skewed in the GDS and GAI, and negative skewed in the psychological growth domain, and physical change domain of the AAQ. Data was also found to be kurtotic on the GDS, and AAQ Psychological Growth domain.

Table 11

Skewness and Kurtosis of the samples

Measures	Clinical Sample		Non-Clinical Sample	
	Skewness (SE)	Kurtosis (SE)	Skewness (SE)	Kurtosis (SE)
GDS	.57 (.30)	-.58 (.60)	1.54 (.25)**	3.81 (.70)**
GAI	.18 (.30)	-.85 (.60)	1.23 (.25)**	.57 (.50)
Image of Aging	.29 (.30)	.35 (.60)	.20 (.25)	-.10 (.50)
AAQ – Psychological Growth	-.7 (.30)*	.04 (.60)	-.59 (.25)**	1.14 (.50)**
AAQ – Psychosocial Loss	.19 (.30)	-.01 (.60)	-.22 (.25)	.38 (.5)
AAQ – Physical Change	-.07 (.30)	-.49 (.60)	-.59 (.25)**	.03 (.50)

Note. * Z value > 1.96 indicate significance of p<.05 ** Z value > 3.29 indicate significance of p<.001, *SE*= standard error.

Homogeneity of variance

Levene's homogeneity of variance test found that the majority of the variables of interest satisfied the assumption of homogeneity, with the exception of one of the domains of the AAQ, Physical change. Table 12 illustrates these statistics. As Levene's test does not take into account covariances, a Box's test was also

utilised, this was found to be non-significant (p=0.493) indicating the assumption of equality of covariance matrices has been met.

Table 12

Levene's Homogeneity of variance tests results

Measure	Levene's Test	
	F Statistic	*p* value
Image of Aging Scale		
Positive Aging Stereotypes	1.79	.183
Negative Aging Stereotypes	.03	.879
AAQ		
Psychological Growth	2.28	.133
Psychological Loss	2.44	.120
Physical Change	5.11	.025

Multiple Regression Assumptions.

Independence of residuals was indicated by the Durbin-Watson statistics, which were between 1.86 and 2.06 for the domains of the AAQ and IoAS. A visual check of residual plots indicated linearity. In order to assess the assumption of no multicollinearity, tolerance statistics were checked, values were over .2 and VIF statistics were not substantially greater than 1 (Field, 2009) which indicates there is no collinearity within the data. A check of histograms indicated that residuals were normally distributed. Based on visual inspection of residual plots, it appeared homoscedasticity had been violated given the funnel shapes in the positive stereotype domain of the IoAS, and slight funnel shape in the physical change domain of the AAQ, this indicates increasing variance across residuals.

Addressing violations of assumptions.

The skewness and kurtosis statistics indicated that the psychological growth domain of the AAQ was negatively skewed for the clinical group. However, as this

skew appeared to be only moderate and the psychological growth domain in the non-clinical group was also negatively skewed, no transformations were applied to the data. The skewness and kurtosis statistics also indicated that the data was negatively skewed in the physical change domain. It is recommended that with larger sample sizes, it is important to look at the shape of distribution visually rather than calculating their significance (Field, 2009), and as visual inspections of the histograms and P-P plots indicate relative normality, data was retained and not changed. Further to this, it has been found that F statistic in ANOVA controls the type 1 error rate well under conditions of skew, kurtosis and non-normality (Glass et al., 1972).

It was decided not to transform raw data in order to address the violation of homoscedasticity in residuals, as this is not recommended (Field, 2009), this reduces the generalisability of the regressions beyond the sample for these domains. Finally, where assumptions of Pearson's r were violated, the non-parametric statistic Spearman's correlation coefficient was utilised.

Additional Exploratory Testing

Clinical Cut Off Scores

As this study used clinical cut off scores below the original recommended (Pachana, Byrne, Siddle, & Koloski, 2007), additional tests were conducted in which only people who scored ≥9 on the GAI were included in the clinical sample. The means of main measures of interest were compared between the original clinical sample (n=63) and the revised clinical sample when applying a cut off score of 9 or above (n=48), and main statistical tests were re-run. Table 13 shows that increasing the threshold for being included in the clinical sample did not make any differences

to overall significance between the groups on measures of attitudes to aging or aging stereotypes.

Table 13

Differences in means between original and revised clinical sample

Measure	Clinical Group mean (*SD*)		*F* value		*p* value	
	Original sample (n=63)	Revised sample (n=48)	Original sample (n=63)	Revised sample (n=48)	Original sample (n=63)	Revised sample (n=48)
Image of Aging scale	60.14 (15.01)	60.96 (15.30)	3.34	0.95	0.067	0.331
AAQ						
Psychological Growth	24.22 (4.08)	23.79 (3.92)	15.32	17.53	<.001	<.001
Psychosocial Loss	25.33 (5.44)	24.50 (4.97)	26.35	31.78	<.001	<.001
Physical Change	30.38 (6.63)	29.21 (6.27)	16.34	25.48	<.001	<.001
GAI	8.83 (5.47)	9.65 (6.02)	-	-	-	-
GDS	1.76 (1.58)	2.26 (1.48)	-	-	-	-

Note. SD = standardised deviation

Image of Aging scale categories

The results indicated that the clinical group of older adults had slightly more negative aging stereotypes, and the non-clinical group had slightly more positive aging stereotypes, however neither of these differences reached clinical significance. In order to investigate whether there were any significant differences in the domains of the IoAS between the clinical and non-clinical sample, a MANOVA was conducted. As there were unequal group sizes, and homogeneity of covariances had been met using a Box's test (p=.100), then Pillai's trace test statistic was chosen (Field, 2009). There was no significant effect of anxiety and depression on the

domains of the IoAS (v=0.74, F(9,146)= 1.298, p=0.74). Results of the univariate ANOVA are outlined in Table 14. As multiple hypothesis tests were completed, the Bonferroni correction was used to reduce the possibility of type I error, resulting in adjusted alpha levels of 0.005 (.05/10). There were no significant differences in the domains of the IoAS between the clinical or non-clinical sample.

Table 14

ANOVA results of IoAS categories

Measure	Clinical sample mean *(SD)*	Non-Clinical sample mean *(SD)*	*F* value (df)	*p* value	Effect size (η_p^2)
IoAS					
Activity	6.13 (2.54)	6.29 (2.24)	0.18	.673	.001
Appearance	5.97 (2.09)	6.02 (2.30)	0.02	.883	.000
Cognition	7.67 (2.41)	7.99 (1.60)	0.84	.360	.005
Death	6.21 (2.54)	7.10 (2.25)	5.24	.023	.033
Dependence	7.22 (2.20)	7.95 (1.96)	4.62	.033	.029
Personality	6.03 (2.16)	6.77 (2.32)	4.26	.041	.027
Physical Health	6.37 (2.43)	6.59 (2.01)	0.40	.526	.003
Relationships	7.33 (2.12)	7.69 (1.93)	1.18	.280	.008
Will to Live	7.22 (2.89)	7.82 (2.21)	2.65	.160	.017

Note. *SD* = standardised deviation, df = degrees of freedom, η_p^2 = Partial eta squared

Age differences in attitudes towards aging and aging stereotypes

There are four generations contained within the 'older adult' population, a 60 years old and 90 year old can be considered as older adults, but they may be very different. Therefore, further analysis looking at differences between the younger and older age groups is warranted. Older adult ages have been categorised as the young old (65-74), medium old (75-84) and oldest old (85+) (Laidlaw, 2015). The majority of the sample were categorised as young old (n=131), with fewer categorised as medium old (n=18) and a minimal number of the sample were categorised as oldest

old (n=4). Given the differences between group sizes it would be invalid to make comparisons. It was decided instead to identify the median age of the sample (65 years old age), and those under 65 years of age were compared to those over 65 years old age in attitudes towards aging domains, aging stereotypes domains, and anxiety and depression scores.

Nonparametric analysis (Kruskal-Wallis) was used given the range of ages differed between 5 and 26 years. There were no significant differences between the two groups on the GDS (x^2 (1) = .312, p=.576), GAI (x^2 (1) = .008, p=.928), psychological growth domain (x^2 (1) = .007, p=.935), psychosocial loss domain (x^2 (1) = .042, p=.837), physical change (x^2 (1) = .979, p=.322), the positive aging stereotype scale (x2 (1) = .362, p=.547) or negative stereotype scale (x^2 (1) = .479, p=.489). These results indicate there was no significant differences between the younger and older age groups. This must be interpreted with caution however given the low median age.

Overall Discussion and Critical Evaluation

This final chapter will summarise the key findings of the systematic review and empirical paper, including critical appraisal, and clinical and theoretical implications. Further to this, consideration will be presented for future research as well as self-reflections on the research process.

Key Findings

The systematic review demonstrated that negative attitudes towards aging, including the psychosocial loss and psychological growth domains of the AAQ, and negative aging stereotypes are consistently related to higher levels of anxiety, or anxiety related disorders. Further to this, longitudinal studies demonstrated those with more negative attitudes towards aging were more likely to develop anxiety, or have persistent anxiety at follow up. This provides some limited evidence for a temporal relationship.

The findings regarding more specific anxieties, such as aging anxiety and death anxiety was less conclusive given the dearth of research and heterogeneity. However, findings were in the expected direction; correlations illustrated higher levels of aging anxiety and death anxiety were associated with more negative stereotypes of older adults. There were methodological limitations within the reviewed literature that were presented in the systematic review.

The empirical paper further supported the findings in the reviewed literature; the clinical group of older adults had significantly more negative attitudes towards aging compared to the non-clinical group of older adults demonstrating medium to large effect sizes across the domains, with the largest effect size found in the psychosocial loss domain.

Further to this, regression analyses widely supported previous findings that mood contributes most significantly to attitudes towards aging, with physical health variables explaining a smaller proportion of the variance. Gender and age were not found to significantly impact on these aging attitudes. This supports the idea that these attitudes may be mood state dependent, and that once mood difficulties have resolved, these attitudes may alter accordingly.

Those with positive aging stereotypes held more positive attitudes towards aging across the three domains of the AAQ. Those with more negative aging stereotypes held more negative attitudes in the psychosocial loss domain of the AAQ. These findings support the gerontological theories presented below in terms of how these two constructs and mood may operate.

The relationship between anxiety and depression and aging stereotypes was not as clear. Although the clinical group of older adults held slightly more negative aging stereotypes, and the non-clinical group of older adults held slightly more positive aging stereotypes these results were not found to be significant. Further to this, depression was found to account for a small proportion of the variance in positive aging stereotypes, but neither anxiety nor depression accounted for the variance in negative aging stereotypes. It is suggested this represents the underlying construct the Image of Aging scale is measuring. Personal stereotypes represent positive and negative views about other older people that are pervasive and potentially less influenced by mood. The stereotype embodiment theory (Levy, 2009) posits that it is when these personal stereotypes become salient that they become self-stereotypes. These self-stereotypes act as a predisposing vulnerability for the formation of negative attitudes towards their own aging. Therefore, personal aging stereotypes may not be significantly predicted by mood until they become self-

stereotypes. This could explain why the findings were in the expected direction, but potentially the relationship is weaker until they become self-relevant. This is further supported by the correlation found between aging stereotypes and attitudes towards aging in this study.

The findings overall consistently demonstrated that those with higher levels of depression and anxiety held more negative attitudes to aging. The relationship between mood and aging stereotypes is less conclusive. There is some evidence to suggest that higher levels of anxiety are associated with more negative aging stereotypes. In light of the empirical paper however, it is posited that personal stereotypes are not as influenced by depression and anxiety, but it is possible self-stereotypes are.

Critical Evaluation

One of the aims of this research portfolio was to extend the current knowledge of the impact of mood on attitudes towards aging and aging stereotypes utilising a clinical sample to ensure clinical relevance. Unfortunately, due to recruitment difficulties within services, the majority of the clinical sample came from the community which meant a diagnosis was not agreed by a qualified clinician. Although participants were required to score above the clinical cut offs on the validated measures to be included, these measures are still screening tools, and not as robust as a structured diagnostic interview by a clinician. This increases the risk of selection bias and questions the validity of the clinical sample; it is possible some participants could have been identified as depressed or anxious who were not and vice versa. Further to this, the majority of the sample were required to be computer literate; age, social status and cultural differences have been found to

influence internet use, as well as willingness to participate in research (Hammer, De Prel, & Balttner, 2009, Yoon, Jang, Vaughan, & Garcia, 2020). This, along with the predominately white sample in the empirical paper, reduces the generalisability of the results to a psychiatric population, those who are not computer literate, as well those from different cultures.

The online recruitment method presents further limitations and potential confounds. It has been consistently demonstrated that a higher level of education is associated with being an internet user, as well as higher socio-economic status (SES, Choi & DiNitto, 2013, Gell et al., 2015, Yoon, Jang, Vaughan, & Garcia, 2020). It has also been demonstrated that in the UK only 47% of adults aged 75 years and over were recent internet users, in comparison to 99% of 16 to 44-year olds (ONS 2019). Further to this, associations have been found between better life satisfaction, better psychological well-being and overall mental health, including lower depressive symptoms, with internet use (Heo et al., 2015, Hamer & Stamatakis, 2014). This has implications for the study in terms of underrepresenting those who do not have access to the internet, with lower SES, potentially with higher levels of depressive symptoms, and who therefore might have more negative attitudes towards aging. Older adults who use the internet have also been reported to have higher levels of agreeableness, and openness to experience (Mitzner et al., 2016). These are further potential confounds that could have affected the internal validity of the study.

The life expectancy for males and females in the UK is 79.2, and 82.9 respectively (ONS, 2017). The mean ages of the empirical samples was 66 and 68 years, similarly the means ages in the systematic review included studies were between 63 and 73. Therefore the attitudes of the 8th, and even 9th decade are underrepresented in this study. This could be because of the online recruitment

process, with just 47% of adults aged 75 years and over using the internet, in comparison to 83% of the 65 to 74 age group (ONS, 2019). There are four generations contained within this population, a 60 year old and 90 year old can both be considered ‘older adults’, but they may be very different, and will have important cohort differences based on this, for example, potentially lived through the Second World War. It has been suggested that the ‘oldest-old’ (85+) are likely to have more complex needs and multiple comorbidities due to increased longevity (Laidlaw, 2015). Further research focusing on the attitudes and stereotypes of the oldest-old will further enrich the evidence base.

The majority of both the clinical and non-clinical sample considered themselves to be generally healthy. Evidence consistently demonstrates that those with long term health conditions are 2-3 times more likely to develop mental health difficulties than the general population (McDaid, Knapp, Fossey, & Galea, 2012). 40% of the clinical sample reported 1 or more physical health difficulties, and 82.5% rated themselves as generally healthy. This therefore could mean the sample underrepresented those that have more physical health difficulties, and do not consider themselves generally healthy, which is important given the comorbidity between mental and physical health.

It was posited in the empirical paper that the IoAS might not have measured what the study aimed to measure, instead it could have been assessing personal stereotypes. Personal stereotypes become self-stereotypes when a person becomes subjectively aware of their own experience of aging when they identify as being ‘old’, this does not necessarily align with chronological age and could be via inclusion in groups that categorise people as 'old', or the individual’s subjective awareness of being old (Diehl & Werner-Wahl, 2010, Levy, 2003). Unfortunately,

subjective age was not measured in the empirical paper, neither was it measured in the majority of the papers in the systematic review and therefore conclusions about self-relevance of aging stereotypes could not be made within the scope of the thesis portfolio.

Further to this, the IoAS measures aging stereotypes utilising a positive-negative binary. It has been found that individuals can hold both positive and negative aging stereotypes, which supports measuring them in this way. However, it is also likely stereotypes are domain specific. Aging stereotype measures in the systematic review similarly did not utilise domain specific measures. It is possible this does not adequately cover the complexity of aging stereotypes. Different domains of aging stereotypes could be explored further to get a better measure of the aging stereotype construct as a whole. It could also be informative to take into account not just the cognitive component of ageism as this thesis portfolio has investigated, but also the emotional and behavioural components, such as discriminatory behaviour towards older adults (Iversen et al., 2009).

The systematic review was the first to systematically examine the relationship between anxiety and attitudes towards aging, and aging stereotypes. The robust design of the review including the search strategy, inclusion and exclusion criteria ensured all relevant articles were included. Attitudes towards aging and aging stereotypes were both included under the umbrella of ‘aging attitudes’. This could be seen as a limitation, especially as the empirical paper found differing relationships between mood and these two similar, but distinct concepts. However, in order to ensure all aging attitudes were included, and given that these terms have been used interchangeably, it seemed important to capture both. Anxiety was also included along with its related disorders. It is difficult to determine if its related disorders,

such as aging anxiety or death anxiety reach the same clinical cuts off that global anxiety do, however, it was deemed important to include all aspects of anxiety given the prevalence of age specific anxieties to adequately cover this construct as a whole. Although internal validity is restricted, external validity is increased.

Depression and anxiety were included in the clinical sample. This decision was made given the comorbidity often seen in psychiatric clinics (King-Kallimanis, Gum & Kohn, 2009, Byers, Yaffe, Covinsky, Reynolds, Pietrzak, El-Gabalawy, Mackenzie, & Sareen, 2015), in order to improve external validity. This was supported by the regression analyses that indicated both depression and anxiety were reliable predictors of attitudes towards aging. Previous research often included depression and not anxiety when exploring attitudes towards aging. The UK APMS (2014) found that anxiety disorders were twice as common than depression in both the 65-74 and 75+ age category. In future research therefore it is beneficial to include both anxiety and depression as common late life disorders, particularly as the clinical implications for these disorders would differ slightly in terms of treatment, and given research that has shown comorbidity may result in poorer treatment prognosis (Diefenbach & Goethe, 2006). Further research could include age specific anxieties to strengthen the evidence based for these related disorders.

The cross-sectional nature of the majority of the reviewed literature in the systematic review, and the empirical paper, means it is not possible within the scope of this thesis portfolio to comment on the direction of this relationship; whether depression and anxiety causes more negative attitudes towards aging, or whether negative attitudes towards aging causes anxiety and depression. We are also unable to conclusively establish if aging stereotypes lead to attitudes towards aging as

Laidlaw's (2015) model suggests. A longitudinal method was not possible within the time limit of this thesis portfolio but is important for considering directionality.

Several different variables are hypothesized to contribute to the formation of attitudes towards aging, an issue common to attitude based research in general (Bryant et al., 2016). With the majority of the research including cross sectional data, it is difficult to establish cause and effect, or indeed the bidirectionality of effects. It could be said that this thesis portfolio highlights 'bottom-up' theories, emphasising the importance of affect, such as depression and anxiety and context. However, 'top-down' theories, which emphasise the role of personality traits that remain stable in response to events, were not examined in this study but could point to important confounding variables (Berg, Hassing, Thorvaldsson, & Johansson, 2011). Personality has been found to influence health and life satisfaction. Higher levels of neuroticism have been associated with lowwe levels of life satisfaction in the oldest old (Berg et al., 2011). These factors could therefore have important implications for how people adapt to aging. Research has found personality traits such as high neuroticism, low extraversion, openness and agreeableness were significant predictors of psychosocial loss domain of the AAQ. Whereas high extraversion, openness and agreeableness were predictors of the more positive outcomes in the physical change and psychological growth domain (Shenkin et al., 2014). Further longitudinal research is necessary to examine further the effect of personality on attitudes towards aging, along with other contributing variables to gain a clearer picture of how these attitudes towards aging might develop.

Both the systematic review and empirical research study findings have added further knowledge to our understanding of the relationship between anxiety and depression and attitudes towards aging and aging stereotypes amongst older adults.

The empirical paper addressed some of the key limitations in the reviewed literature including: utilising validated measures for use with older adults; measures that investigated attitudes towards aging and aging stereotypes as similar, but distinct constructs; and including both anxiety and depression in a clinical sample in order to compare to a non-clinical sample.

Further strengths and limitations of the individual research papers have been considered within the respective main papers.

Theoretical and Clinical Implications

Despite the limitations, the findings reported in the thesis portfolio raise some important clinical and theoretical implications when working with older adults, particularly when clients identify their problems to be associated with their aging. The AAQ could be utilised in the assessment of older adults in order to establish any negative attitudes towards aging individuals may be holding. These could be used as treatment targets; if someone presents with negative attitudes with regards to psychosocial loss, then promoting social inclusion could be important. Similarly, if the physical health domain is negative then targeting this behaviourally, in terms of exercise, and cognitively, by challenging their subjective view of their health could be beneficial. Previous research has found more positive attitudes are associated with better physical health (Bryant et al., 2012) and therefore targeting these negative attitudes could also result in an improvement in subjective physical health, as well as mental health.

Cognitive behavioural therapy is the recommended treatment for anxiety and depression in older adults. The research presented in this thesis portfolio are aligned with the model outlined by Laidlaw (2015) and highlights the importance of

integrating these negative self-stereotypes and negative attitudes towards aging within CBT for older people. Laidlaw and Kishita (2015) propose that this may augment cognitive behaviour therapy outcomes for older adults. They propose stereotypical beliefs about aging could be endorsed by both patient and therapist. Therapists may lack understanding that most older adults do not experience aging as a time of misery and loss, and therefore assume their client's difficulties are unchangeable, and an inevitable consequence of aging. This is further supported by the 'understandability phenomenon' coined by Blanchard (1992), which posits patients and relatives assume depressive symptoms are a normal consequence of aging and therefore assume 'nothing can be done'. Subsequently, health professionals may fail to detect depression as treatable. Blanchard (1992) attributes this as the consequence of cultural stereotypes.

Similarly, Levy's (2009) stereotype embodiment theory posits that negative aging stereotypes are internalised from a young age, and become salient, acting as self-stereotypes when an individual identifies as being 'old'. These self-stereotypes are further reinforced by attentional biases towards negative information regarding aging, that supports these negative beliefs. These concepts align with the cognitive negativity bias underpinning CBT, in which individuals commonly overlook positive information and instead attend to negative stimuli. This inevitably creates a vicious cycle whereby individuals become hypervigilant to the negative indicators of aging, which reinforce their beliefs that old age is an unpleasant and depressing time of life.

Incorporating these ideas within the CBT model has been presented in the form of a stress-diathesis focused on aging, this is visually presented in Figure 3. Laidlaw and Kishita (2015) posit that when negative aging stereotypes (diatheses) become salient, after becoming aware of negative experiences associated with aging

(stressors), the outcomes are reinforcing negative cognitive-affective-behavioural cycles. It is hypothesised that these cycles may prevent individuals form seeking help for their mental health difficulties. Helping clients to understand these cycles will be an important aspect of therapy.

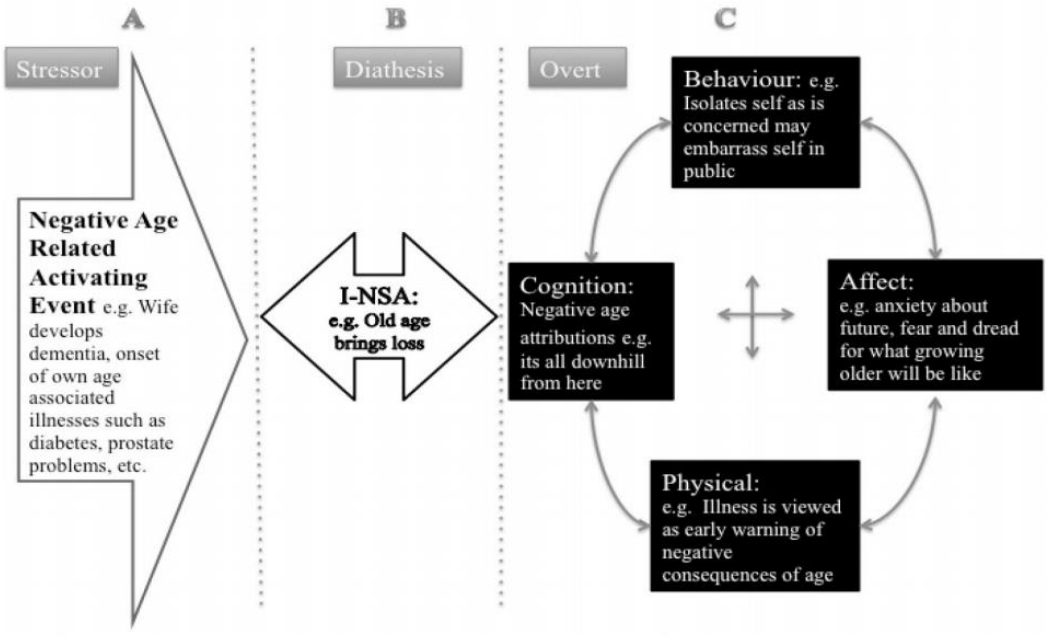

Figure 3. *Stress Diathesis in CBT (Laidlaw, 2015). Note: I-NSA=Internalised negative age stereotypes.*

The findings compliment the stereotype embodiment theory (Levy, 2009) which postulates that these negative aging stereotypes are entrenched from an early age, and older people's negative attitudes towards aging are considered to be a reflection of these stereotypes becoming self-stereotypes (Levy, 2009). Interventions should therefore be developed to target these negative social stereotypes of aging. Community programmes and campaigns that foster mutual understanding and respect in younger and older generations could work towards shifting this stereotype (Chase, 2011). Intergenerational care is an example of a successful community

initiative; this involves pairing nurseries with care homes for the elderly. This has been found to improve the quality of life for older adults and even enable them to 'forget' about their own physical limitations, not only is there benefit to the older adults but it has also been found to boosts children's literacy and social skills (United for All Ages, 2019). Although these approaches are not consistent with standard models, and are viewed as quite radical, some areas are embracing this with positive outcomes. Intergenerational care for example has been highlighted in mainstream media in the channel 4 series 'Old People's Home for 4 Years Olds'. This aligns with other research that has found physical contact with grandchildren buffered against the negative stereotype threat (Abrams et al., 2008).

Policies that incorporate the social engagement and involvement of older adults are also key to sustaining a positive shift in societal aging stereotypes. The UK government have taken steps towards this, and created a strategy paper designed to 'build a society for all ages' (Department for Works and Pensions, 2009), which aimed to create opportunities for older people to continue work if they want too, and provide packages of information for people approaching old age about opportunities to keep physically and socially active.

Finally, providing positive information about aging influences more positive attitudes towards aging, and those with more positive attitudes towards aging also held more positive ageing stereotypes. Therefore, regardless of therapeutic modality, there is an important role for psychoeducation around aging, to foster more positive attitudes (Laidlaw, 2014). Gains over losses should be emphasised, such as improved ability to regulate emotions and gains in wisdom, as well as encouraging older adults to reflect on the positive changes and consider how they can share this wisdom with younger generations. Some research has found interactions with people who are

considered to be successfully aging can serve to buffer against the negative effects of aging stereotypes on physical functioning (Dasgupta, 2001) and that most older women had a family member or friend who represented this model of successful aging. Encouraging engagement with this in-group could educate those with more negative attitudes that it's not the norm, and that old age can be a fruitful and happy time of life.

Future Research

The majority of the research in this thesis portfolio utilise self-report measures, which can result in an over or under-estimation of symptoms. There is a body of research that measured cardiovascular responses to stress, such as systolic blood pressure and cortisol measurements, in relation to negative age stereotype. They found increased cardiovascular response to stress when negative aging stereotypes were activated (Weiss, 2018, Levy et al., 2008) as well less cortisol increase across 30 years in those holding more positive age stereotypes than those holding more negative age stereotypes (Levy et al., 2016). Although stress is a conceptually distinct construct to anxiety, it could be that further research utilising biological markers of mental health difficulties could reduce self-response bias and add to this body of research. Further research utilising a clinical sample in which a diagnosis of mental health difficulties are confirmed by a professional could also be useful to validate findings in a clinical population.

Aging is an idiosyncratic experience and theory suggests it could be invalid to assume a person identifies as 'old', just because they are over a certain age. This is further illustrated by consistent findings that despite chronological age, the majority of older adults feel younger than they are, for example, one study found almost two

thirds of 84-90 years old reported that they did not feel old (Infurna, Gerstorf, Robertson, Berg & Zarit, 2010; Stephan, Demulier & Terracciano, 2012). Previous studies measure subjective age by asking participants how old they feel and compare this to their chronological age, or ask people when they feel old age starts and compare this to their chronological age (Molden & Maxfield, 2017). Therefore, future research would benefit from including a measure of subjective aging, in order to make conclusions about the self-relevance of aging stereotypes, adding further support to the stereotype embodiment theory, and AARC theory.

Longitudinal studies have indicated those with more negative aging stereotypes and attitudes were more likely to develop anxiety and depression at follow up (Levy et al., 2019, Freeman et al., 2016, Coleman et al., 1993). Further longitudinal studies will be necessary in order make conclusions regarding the direction of the relationship between attitudes towards aging, aging stereotypes and mood variables. This could include personality factors that may also be important contributors.

There have been suggestions made for clinical and societal interventions. Further research is therefore required to investigate whether these interventions influence aging attitudes and stereotypes, and therefore mood. Further to this, in order to ascertain if an augment to therapy for older adults needs to have a specific intervention considering aging, a single case series design could be appropriate as one does not currently exist. Finally, further research with older adults who have positive attitudes towards aging could also enrich the evidence base, what can we learn from these older adults, and what helps them ‘successfully age’?

Self-Reflection

Despite correspondence with various teams around East Anglia, and attendance at team meetings, only teams where previous links had been built agreed to recruit, and recruitment through these channels was poor. The process of recruitment has highlighted the need to devote adequate time into recruitment within services, to regularly visit the service to keep momentum and create as little burden within teams as possible. Further to this, the NHS REC process was time consuming, and when the need to make an amendment arose research activities were delayed further. This placed further pressure on time for recruitment. When planning future research endeavours, I will be sure to consider inevitable delays that may occur during ethical approval and recruitment, a reality of conducting research within NHS services.

Recruitment within the community proved much more effective. There was concern that using social media platforms to recruit older adults may not yield such successful results, on the contrary utilising these platforms enabled me to reach potential participants much more easily. This led to reflections about whether some aging stereotypes were occurring within the research team with regards to older adults and their technological ability. Throughout this research project, digesting the more positive data around aging has influenced my own aging stereotypes, and I find myself sharing this knowledge with others if I hear a grumble about aging.

The journey completing the thesis portfolio has led to several new skills that can be utilised for future research endeavours as a Clinical Psychologist. This includes applications for NHS ethical approval, liaising with NHS services and

research and development departments for recruitment, as well as consolidating findings and presenting them in a manner that is fit for publication.

Conclusion

The thesis portfolio has demonstrated older adults suffering with depression and anxiety have been found to be more congruent with the cultural negative stereotype of aging and report more negative attitudes towards aging. Given the positive data reported about the experience of aging, indicating that older adulthood can be the happiest time of life, the benchmark, or ‘norm’ should be a more positive attitude towards aging, a time of increased emotional resilience, increased wisdom who continue to make valuable contributions to society. The idea that it is a period of negativity, sadness, and loss is a common misperception, one that is related to mood, and one that clinicians should be acutely aware of and should be challenged in therapeutic interventions

With an aging population worldwide, promoting successful aging should be a priority. The clinical and theoretical implications of the research findings, along with suggestions for future research, help to build on the current understanding of the association between attitudes towards aging, and aging stereotypes and mood, and promote incorporating this understanding into interventions with older adults, as well local and social policy.

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Appendices

Appendix A: Journal Guidelines for The Journals of Gerontology.

Aims and Scope of the Journal

The Journal of Gerontology: Psychological Sciences publishes articles on development in adulthood and old age that advance the psychological science of aging processes and outcomes. Articles in the journal have clear implications for theoretical or methodological innovation in the psychology of aging or contribute significantly to the empirical understanding of psychological processes and aging. Areas of interest include, but are not limited to, attitudes, clinical applications, cognition, education, emotion, health, human factors, interpersonal relations, neuropsychology, neuroscience, perception, personality, physiological psychology, social psychology, and sensation. Applied research with theoretical significance is welcome, as are conceptually interesting examples of cutting-edge analytic approaches. Manuscripts reporting work that relates behavioral aging to neighboring disciplines are also appropriate. The Journal publishes three types of articles: (a) Research Articles, reportings on original research, preferably with multiple studies and/or samples, (b) Research Reports, for brief presentations generally of single studies, and (c) New Directions in Aging Research—reviews of cutting-edge topics with theoretical or methodological implications. See word and page limitations below. All submissions are peer-reviewed, with final decisions made by the Editor.

Due to the high volume of submissions, we are unable to offer pre-screening advice. Instead, please refer to the aims and scope of the journal to determine if *The Journal of Gerontology: Psychological Sciences* is a suitable venue for your work.

On this page:

Types of Manuscripts Considered

The Journal of Gerontology: Psychological Sciences will accept the following kinds of manuscripts:

Research Articles: This is the standard format for new empirical manuscripts; reporting multiple studies (including replication studies) and/or multiple samples within the manuscript is encouraged. The maximum allowable word count of manuscripts reporting empirical studies should not exceed 5,000 words. If you believeyou have an unusual circumstance (e.g., complex analyses), authors may contact the editorial office (jgeronpsych@geron.org) and request permission to submit up to 6,000 words of text. The word count includes title page, abstract and text. The reference list is limited to 50 entries, and 5 data elements (tables and or figures).

Research Reports: This brief manuscript format is appropriate for single study papers. Well-powered replication attempts may also be appropriate. The maximum allowable word count is 2,500 words. The word count includes title page, abstract and text. The reference list is limited to 30 entries, and the references, tables, and figures must not exceed an additional 5 pages.

New Directions in Aging Research: The goal of these review articles is an integrative presentation of findings on a cutting-edge topic with attention to theoretical and methodological implications for future work on the selected topic. It is expected that these papers will include a novel integration and critical analysis of existing views in a specific area that has not been reviewed elsewhere, as well as proposed resolution(s) of controversial positions to advance the field. Methodological contributions should present innovative methods for the study of adult development and aging, which should be supported with examples based upon empirical data if possible. The maximum allowable word count is 5,000 words. If you believe you have an unusual circumstances (e.g., complex analyses), authors may contact the editorial office (jgeronpsych@geron.org) and request permission to submit up to 6,000 words of text. The word count includes title page, abstract and text. The reference list is limited to 50 entries, and no more than 5 data elements.

Formatting

Manuscripts must be submitted in *Microsoft Word or a Word-compatible program* at on the Journal's ManuscriptCentral page. Manuscripts should be double spaced in 12-pt Times New Roman font. See specific instructions below for tables and/or figures. Manuscripts submitted in other formats and styles will be unsubmitted and returned to the corresponding author for correction prior to editor review. Please DO NOT submit PDF versions of your manuscript submission materials. Each table should be editable and in Microsoft Word or a Word-compatible program on a separate page at the end of the main document.

Style

Manuscripts should be prepared using APA style. For detailed information, refer to the *Publication Manual of the American Psychological Association* (6th ed.), APA Style.

Abbreviations

Ensure that the use of abbreviations is clear and that each one is defined in the text at its first mention only.

Footnotes

Footnotes, indicated by superscript figures in the text, should be used rarely and only for essential explanatory notes. Footnotes should be numbered consecutively, should be kept as brief as possible, and should be placed on a separate page. Authors are responsible for checking the accuracy of all footnotes and references.

Components of the Manuscript

Cover Letter

A cover letter should explain how the manuscript is innovative, provocative, timely, and of interest to a broad audience, and other information authors wish to share with editors. The letter should explain the manuscript's novel or value-added scientific contribution relative both to the existing literature, and also to previously published papers by the authors, especially from the same dataset and/or on the same general topic. The cover letter for manuscripts will NOT be shared with reviewers.

Title page: (Required) A title page should be a completely separate page that includes the following:

1. Title of the manuscript;
2. All authors' full name(s), highest academic degrees, and affiliations; and
3. Clear designation of the corresponding author, complete with e-mail address. Editorial policy requires that only one author be listed for correspondence.
4. Word count of main text, number of references, and number of data elements (tables and/or figures).

Abstract and Keywords

On the page immediately following the title page, include a structured abstract of no more than 250 words, double spaced. It should contain these headers: Objectives, Method, Results, and Discussion.

At the bottom of the abstract page, authors should supply three to five keywords that are NOT in the title. (Please avoid elders, older adults, or other words that would apply to all manuscripts.) Please note three keywords must be entered to move forward in the online submission process.

Text

The text of research articles should be divided into major sections with the headings Introduction, Methods, Results, and Discussion. Articles may require subheadings within sections to clarify their content. The Discussion should not merely restate the results but should interpret the results.

1. The word counts for the different kinds of publications considered by the Journal are presented above and are inclusive of the title page, abstract and text.

2. To manage the word and page counts, authors are encouraged to submit detailed methodology, larger tables and/or figures as supplemental files. If your manuscript is accepted, these files are available to readers on line but do not count against the word count limits.
3. If manuscripts exceed these word/page count limits, your manuscript will be returned to you for correction BEFORE the peer review process can begin. The abstract limit of 50 words is not negotiable. If you would like to appeal the word count limit for the text of the manuscript, permission must be granted by the Editor in Chief prior to submission. When you submit your manuscript, please indicate in your cover letter that permission has been granted and the date it was granted.
4. All manuscripts must explicitly provide a justification for the sample size (for example, the power analysis used to determine the sample size) in the main text.

References

In-text citations and references of journals, books, multi-author books and articles published online should conform to the 6th edition of the Publication Manual of the American Psychological Association (2009). References in the text are shown by citing in parentheses the author's surname and/or the year of publication [e.g., "A recent study (Jones, 2007) showed, or Jones (2007) has shown].

The reference list should be double spaced and arranged alphabetically by author's surname; do not number. The reference list should include only references cited in the text and should generally not exceed 50 entries for original research and theoretical/methodological articles, and 30 for research reports. Do not include references to private communications. Please add Digital Object Identifiers (DOIs) to the reference section. One way to locate the DOIs is to use CrossRef.org. This is a free service by which one submits a formatted reference list and it returns the DOIs for the cited articles. After creating an account, go to Simple Text Query in the Technical Resources options.

Conflict of Interest

At the point of submission, each author should reveal any financial interests or connections, direct or indirect, or other situations that might raise the question of bias in the work reported or the conclusions, implications, or opinions stated – including pertinent commercial or other sources of funding for the individual author(s) or for the associated department(s) or organization(s), personal relationships, or direct academic competition. When considering whether you should declare a conflicting interest or connection please consider the conflict of interest test: Is there any arrangement that would embarrass you or any of your co-authors if it was to emerge after publication and you had not declared it?
As part of the online submission process, corresponding authors are required to confirm whether they or their co-authors have any conflicts of interest to declare, and to provide details of these. It is the Corresponding author's responsibility to ensure that all authors adhere to this policy.

Funding

Details of all funding sources should be given in a separate section entitled 'Funding'. This should appear before the 'Acknowledgements' section.

The following rules should be followed:

- The sentence should begin: ‘This work was supported by …’
- The full official funding agency name should be given, i.e. ‘the National Cancer Institute at the National Institutes of Health’ or simply 'National Institutes of Health' not ‘NCI' (one of the 27 subinstitutions) or 'NCI at NIH' (full RIN-approved list of UK funding agencies)
- Grant numbers should be complete and accurate and provided in parentheses as follows: ‘(grant number ABX CDXXXXXX)'
- Multiple grant numbers should be separated by a comma as follows: ‘(grant numbers ABX CDXXXXXX, EFX GHXXXXXX)’
- Agencies should be separated by a semi-colon (plus ‘and’ before the last funding agency)
- Where individuals need to be specified for certain sources of funding the following text should be added after the relevant agency or grant number 'to [author initials]'.

An example is given here: ‘This work was supported by the National Institutes of Health (P50 CA098252 and CA118790 to R.B.S.R.); and the Alcohol & Education Research Council (HFY GR667789).’

Crossref Funding Data Registry

In order to meet your funding requirements authors are required to name their funding sources, or state if there are none, during the submission process. For further information on this process or to find out more about the CHORUS initiative please click here.

Acknowledgments (Required)

Acknowledgments and details of support must be included at the end of the text before references and not in footnotes. Personal acknowledgments should precede those of institutions or agencies. Please note that acknowledgment of funding agencies should be given in the separate Funding section.

Tables

1. Each table should be in Microsoft Word or a Word-compatible program on a separate page of the main document.
2. Tables should be placed at the end of the manuscript, after the references. Do not submit as separate files.
3. There is a limit on the size of tables: Tables that use more than 2 manuscript pages and/or are more than one printed page when published should be submitted in the file type: Supplemental material for review and online publication. Larger tables will be posted online only.

4. Number the tables consecutively using Arabic numbers and supply a brief title at the top for each.
5. Titles should describe the content of the table, the population to which the table refers, and other pertinent information so that the table is interpretable by the reader with minimal reference to the text.
6. Units in which results are expressed should be given in parentheses at the top of each column and not repeated in each line of the table. Ditto signs should not be used.
7. Avoid overcrowding the tables, the excessive use of words, and the use of multiple levels of column heads (called spanner heads). Place information pertaining to the column heads themselves in lettered footnotes; for instance, the number of observations, *N*s, and log likelihood values. If the *N* is the same for all columns, include it in the table *Notes* instead of in the column heads.
8. Avoid abbreviations within the table itself. If used, however, each abbreviation must be explained in the table's *Note*.
9. Notes and footnotes for the table should be typed immediately below the table. General notes are first and include abbreviations; these notes are preceded by the italicized word "*Note*" and a period. Footnotes are below general notes and should follow the sequence cited in the *Publication Manual of the American Psychological Association*: *a, b, c, d*, etc. (not italicized). The *p*-values appear last, beneath the footnotes, and use asterisks (*p<.05).
10. The format of tables should be in keeping with APA style; in particular, vertical lines, colored text, and shading should not be used.
11. Please be certain that the data given in tables are correct.
12. For horizontal alignment, column heads should be aligned on the first rule of the table or on spanner rules and entries in rows in the table body should be aligned on the top line of the entry.
13. For vertical alignment, columns of data should be aligned on common elements such as decimal points, plus/minus signs, or hyphens. If table entries consist of lengthy text, the flush-left format should be used with an indent for run-over lines. If columns contain mixed data, please align on the decimal point.

Figures / Illustrations

Figures should be uploaded as individual, high resolution (300 DPI) files. Figures will be typeset into columns and should be sized to fit in one column or two. The width of a single column is 83 mm or 3.4 inches. The width of a double column figure is 170 mm or 6.5 inches. Figures should be uploaded at FINAL size. Generally, figures should be no wider than 83mm. If figures are submitted at a wider width, 170mm maximum, the journal reserves the right to reduce the size of figures to 83 mm. If figures have multiple panels, when possible, stack the panels vertically so that figures don't exceed the width requirements. It is important that all text be legible when the figure is sized according to the journal's dimensions. The font size in figure files should be at least 8pt, and all text should be legible at 100% zoom.
Captions for figures should be typed double space on a separate page in the main document and include numbers corresponding to the proper figure .

Color Figures

Figures will appear in color online, but will only appear in print when deemed scientifically necessary. Authors do have the option of paying for color figures IF they want a color figure option. Please contact the Editorial Office for further information about color figures at jgeronpsych@geron.org.

Table Titles and Captions for Illustrations

Type table and figure captions double spaced on a separate page following the references in the main document, with numbers corresponding to the tables and illustrations. Table titles and figure captions should provide sufficient information so that the reader can understand the tables and figures with minimal reference to the text. Explain symbols, arrows, numbers, or letters used in illustrations. Explain internal scale and identify staining method in photomicrographs.

Supplementary Material

Supporting material can be made available by the publisher online-only and linked to the published article. This material includes supporting material that is not essential for inclusion in the full text to understand the conclusions of the paper but contains data that is additional or complementary and directly relevant to the article content and therefore may benefit the reader. Such information might include more detailed methods, extended data sets/data analysis, or additional figures. All supplementary material should be submitted in a single, PDF file.

It is standard practice for appendixes to be made available online-only as supplementary data. All text and figures must be provided in suitable electronic formats. All material to be considered as supplementary material must be submitted for peer review as separate files at the same time as the main manuscript and indicated clearly as supplementary material. Also ensure that the supplementary material is cited in the main manuscript where necessary, for example, "(see Supplementary data)" or "(see Supplementary Figure 1)". The material cannot be altered or replaced after the paper has been accepted for publication, and it will not be edited.

Appendixes

All appendixes will be published online only as supplementary material (please see the description of Supplementary Material above).

Appendix B: Quality Checklist including guidelines.

Criteria	Yes	No	Other (CD, NR, NA)*
1. Was the research question or objective in this paper clearly stated?			
2. Was the study population clearly specified and defined?			
3. Were the selected participants likely to be representative of the target population			
4. Was the participation rate of eligible persons at least 50%?			
5. Was a sample size justification, power description, or variance and effect estimates provided?			
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?			
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?			
8. Were the anxiety measures clearly defined, valid, and reliable? 8a. Was the anxiety measure suitable for an older adult population?			

Criteria	Yes	No	Other (CD, NR, NA)*
9. Were the attitude towards aging/aging stereotype measures clearly defined, valid, and reliable? 9a.Was the measure suitable for an older adult population?			
10. Was loss to follow-up after baseline 20% or less?			
11. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between anxiety and attitudes towards ageing, or ageing stereotypes.			

*CD, cannot determine; NA, not applicable; NR, not reported

Quality Rating: Good, Fair, Poor

Guidance for Assessing the Quality of Observational Cohort and Cross-Sectional Studies

The guidance document below is organized by question number from the tool for quality assessment of observational cohort and cross-sectional studies.

Question 1. Research question

Did the authors describe their goal in conducting this research? Is it easy to understand what they were looking to find? This issue is important for any scientific paper of any type. Higher quality scientific research explicitly defines a research question.

Questions 2, 3, 4. Study population

Did the authors describe the group of people from which the study participants were selected or recruited, using demographics, location, and time period? If you were to conduct this study again, would you know who to recruit, from where, and from what time period? Is the cohort population free of the outcomes of interest at the time they were recruited?

An example would be men over 40 years old with type 2 diabetes who began seeking medical care at Phoenix Good Samaritan Hospital between January 1, 1990 and December 31, 1994. In this example, the population is clearly described as: (1) who (men over 40 years old with type 2 diabetes); (2) where (Phoenix Good Samaritan Hospital); and (3) when (between January 1, 1990 and December 31, 1994). Another example is women ages 34 to 59 years of age in 1980 who were in the nursing profession and had no known coronary disease, stroke, cancer, hypercholesterolemia, or diabetes, and were recruited from the 11 most populous States, with contact information obtained from State nursing boards.

In cohort studies, it is crucial that the population at baseline is free of the outcome of interest. For example, the nurses' population above would be an appropriate group in which to study incident coronary disease. This information is usually found either in descriptions of population recruitment, definitions of variables, or inclusion/exclusion criteria.

You may need to look at prior papers on methods in order to make the assessment for this question. Those papers are usually in the reference list.

If fewer than 50% of eligible persons participated in the study, then there is concern that the study population does not adequately represent the target population. This increases the risk of bias.

Question 5. Sample size justification

Did the authors present their reasons for selecting or recruiting the number of people included or analyzed? Do they note or discuss the statistical power of the study? This question is about whether or not the study had enough participants to detect an association if one truly existed.

A paragraph in the methods section of the article may explain the sample size needed to detect a hypothesized difference in outcomes. You may also find a discussion of power in the discussion section (such as the study had 85 percent power to detect a 20 percent increase in the rate of an outcome of interest, with a 2-sided alpha of 0.05). Sometimes estimates of variance and/or estimates of effect size are given, instead of sample size calculations. In any of these cases, the answer would be "yes."

However, observational cohort studies often do not report anything about power or sample sizes because the analyses are exploratory in nature. In this case, the answer would be "no." This is not a "fatal flaw." It just may indicate that attention was not paid to whether the study was sufficiently sized to answer a prespecified question–i.e., it may have been an exploratory, hypothesis-generating study.

Question 6. Exposure assessed prior to outcome measurement

This question is important because, in order to determine whether an exposure causes an outcome, the exposure must come before the outcome.

For some prospective cohort studies, the investigator enrolls the cohort and then determines the exposure status of various members of the cohort (large epidemiological studies like Framingham used this approach). However, for other cohort studies, the cohort is selected based on its exposure status, as in the example above of depressed diabetic men (the exposure being depression). Other examples include a cohort identified by its exposure to fluoridated drinking water and then compared to a cohort living in an area without fluoridated water, or a cohort of military personnel exposed to combat in the Gulf War compared to a cohort of military personnel not deployed in a combat zone.

With either of these types of cohort studies, the cohort is followed forward in time (i.e., prospectively) to assess the outcomes that occurred in the exposed members compared to nonexposed members of the cohort. Therefore, you begin the study in the present by looking at groups that were exposed (or not) to some biological or behavioral factor, intervention, etc., and then you follow them forward in time to examine outcomes. If a cohort study is conducted properly, the answer to this question should be "yes," since the exposure status of members of the cohort was determined at the beginning of the study before the outcomes occurred.

For retrospective cohort studies, the same principal applies. The difference is that, rather than identifying a cohort in the present and following them forward in time, the investigators go back in time (i.e., retrospectively) and select a cohort based on their exposure status in the past and then follow them forward to assess the outcomes that occurred in the exposed and nonexposed cohort members. Because in retrospective cohort studies the exposure and outcomes may have already occurred (it depends on how long they follow the cohort), it is important to make sure that the exposure preceded the outcome.

Sometimes cross-sectional studies are conducted (or cross-sectional analyses of cohort-study data), where the exposures and outcomes are measured during the same timeframe. As a result, cross-sectional analyses provide weaker evidence than regular cohort studies regarding a potential causal relationship between exposures and outcomes. For cross-sectional analyses, the answer to Question 6 should be "no."

Question 7. Sufficient timeframe to see an effect

Did the study allow enough time for a sufficient number of outcomes to occur or be observed, or enough time for an exposure to have a biological effect on an outcome? In the examples given above, if clinical depression

has a biological effect on increasing risk for CVD, such an effect may take years. In the other example, if higher dietary sodium increases BP, a short timeframe may be sufficient to assess its association with BP, but a longer timeframe would be needed to examine its association with heart attacks.

The issue of timeframe is important to enable meaningful analysis of the relationships between exposures and outcomes to be conducted. This often requires at least several years, especially when looking at health outcomes, but it depends on the research question and outcomes being examined.

Cross-sectional analyses allow no time to see an effect, since the exposures and outcomes are assessed at the same time, so those would get a "no" response.

Question 8 and 9. Outcome measures

Were the outcomes defined in detail? Were the tools or methods for measuring outcomes accurate and reliable–for example, have they been validated or are they objective? This issue is important because it influences confidence in the validity of study results. Also important is whether the outcomes were assessed in the same manner within groups and between groups.

An example of an outcome measure that is objective, accurate, and reliable is death–the outcome measured with more accuracy than any other. But even with a measure as objective as death, there can be differences in the accuracy and reliability of how death was assessed by the investigators. Did they base it on an autopsy report, death certificate, death registry, or report from a family member? Another example is a study of whether dietary fat intake is related to blood cholesterol level (cholesterol level being the outcome), and the cholesterol level is measured from fasting blood samples that are all sent to the same laboratory. These examples would get a "yes." An example of a "no" would be self-report by subjects that they had a heart attack, or self-report of how much they weigh (if body weight is the outcome of interest).

Similar to the example in Question 9, results may be biased if one group (e.g., people with high BP) is seen more frequently than another group (people with normal BP) because more frequent encounters with the health care system increases the chances of outcomes being detected and documented.

Question 10. Followup rate

Higher overall followup rates are always better than lower followup rates, even though higher rates are expected in shorter studies, whereas lower overall followup rates are often seen in studies of longer duration. Usually,

an acceptable overall followup rate is considered 80 percent or more of participants whose exposures were measured at baseline. However, this is just a general guideline. For example, a 6-month cohort study examining the relationship between dietary sodium intake and BP level may have over 90 percent followup, but a 20-year cohort study examining effects of sodium intake on stroke may have only a 65 percent followup rate.

Question 11. Statistical analyses

Were key potential confounding variables measured and adjusted for, such as by statistical adjustment for baseline differences? Logistic regression or other regression methods are often used to account for the influence of variables not of interest.

This is a key issue in cohort studies, because statistical analyses need to control for potential confounders, in contrast to an RCT, where the randomization process controls for potential confounders. All key factors that may be associated both with the exposure of interest and the outcome–that are not of interest to the research question–should be controlled for in the analyses.

For example, in a study of the relationship between cardiorespiratory fitness and CVD events (heart attacks and strokes), the study should control for age, BP, blood cholesterol, and body weight, because all of these factors are associated both with low fitness and with CVD events. Well-done cohort studies control for multiple potential confounders.

Some general guidance for determining the overall quality rating of observational cohort and cross-sectional studies

Critical appraisal involves considering the risk of potential for selection bias, information bias, measurement bias, or confounding (the mixture of exposures that one cannot tease out from each other). Examples of confounding include co-interventions, differences at baseline in patient characteristics, and other issues throughout the questions above. High risk of bias translates to a rating of poor quality. Low risk of bias translates to a rating of good quality. (Thus, the greater the risk of bias, the lower the quality rating of the study.)

In addition, the more attention in the study design to issues that can help determine whether there is a causal relationship between the exposure and outcome, the higher quality the study. These include exposures occurring prior to outcomes, evaluation of a dose-response gradient, accuracy of measurement of both exposure and outcome, sufficient timeframe to see an effect, and appropriate control for confounding–all concepts reflected in the tool.

Generally, when you evaluate a study, you will not see a "fatal flaw," but you will find some risk of bias. By focusing on the concepts underlying the questions in the quality assessment tool, you should ask yourself about the potential for bias in the study you are critically appraising. For any box where you check "no" you should ask, "What is the potential risk of bias resulting from this flaw in study design or execution?" That is, does this factor cause you to doubt the results that are reported in the study or doubt the ability of the study to accurately assess an association between exposure and outcome?

Appendix C: Poster for Clinical Services

University of East Anglia

Are you 60 years or older and have an opinion on ageing?

"ONE SHOULD HAVE HIS OWN OPINION OR WHAT DO YOU THINK?"

Are you receiving treatment for anxiety or depression?

Are you willing to give 15 minutes of your time to share it by completing some questionnaires?

This study aims to explore the different views of ageing of people over the age of 60. We are particularly interested in how depression and/or anxiety might impact on these experiences of getting older.

Interested in participating?

Click on the following link to read more, and participate if you wish too: **http://uea.onlinesurveys.ac.uk/yourviewsonageing**
or
Contact me on **emma.townsend@uea.ac.uk** to find out more
or
Speak to your **clinician**

IRAS: 248356
Version 1: 03/12/18

Thank you!

Appendix D: Participant Information Sheet – Clinical Version

Clinical Psychology Doctorate Programme
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich NR4 7TJ
Email:Emma.Townsend@uea.ac.uk
Tel: 01603 456151

Ageing Stereotypes and Attitudes to Ageing Among Older Adults

Information Sheet

I would like to invite you to take part in this research study; before you decide, please take time to read and consider the following information in order to understand why the research is being done, and what it would involve for you.

Life expectancy has significantly increased and people are living for much longer than before. This means the number of people experiencing the process of ageing is also increasing. It is therefore important to understand factors associated with the individual and shared experience of ageing.

Purpose of the study

The purpose of the research is to investigate your experience of ageing. We are particularly interested in how depression and/or anxiety might impact on these experiences of getting older.

What will be involved if I take part in this research?

A study pack will be provided with four short questionnaires included, and a questionnaire asking for basic demographic details, for example your age and gender. I would like you to complete these questionnaires in full following the instructions provided. This should take around 15-25 minutes in total, and can be done online, or via a paper study pack that your clinician can provide. If you have completed the paper version, this can then be returned to me via a stamped addressed envelope provided, or handed back to your clinician at your next appointment. If you have completed the online version, you can click ‘submit’ to complete. The online version can be completed using a computer, laptop, tablet or mobile phone.

What are the benefits of taking part?

There will be no direct benefit in taking part in this study. However, you will be contributing to research hoping to improve our understanding of the impact anxiety and depression may have on how we experience ageing. These findings can then be used to try and improve existing treatments for these conditions.

As a thank you for spending the time to take part in this study, we are offering a prize draw of a £25 amazon voucher. There will be a tick box provided with the consent form to confirm you wish to enter the draw and you will be asked to provide a contact, so I am able to let you know if you are successful. In the online version, a similar box will appear that you will be required to click to confirm you wish to enter into the draw, and again, you will be asked to provide a contact.

Will my responses be kept confidential?

Your responses remain confidential and are stored securely. No personal details will be released. All information collected as part of this study will be stored in accordance with the General Data Protection Regulation (GDPR) and access will be restricted to me and my supervisor.

Can I withdraw from the study?

You can withdraw from completing the questionnaires at any time without giving a reason. However, please note that once the questionnaires have been submitted, the responses will be collated into an anonymous database and it will not be possible to identify individual responses.

It is up to you to decide whether or not to take part and neither the clinician who discussed the study with you, nor any other third party, will be made aware of your decision. Should you decide to participate, you will be asked to sign a consent form, or use a simple online version to click to confirm your consent and participation.

Are there any risks to taking part?

You may feel some issues raised are of a sensitive nature; however, it is unlikely that taking part in this research will cause distress. If this does happen, we want to encourage you to speak to your clinician for further support.

Will I be told about the findings of the study?

If you would like a copy of the summary report, there will be a tick box provided with the consent form in which you can confirm this, you will be asked to provide a contact that I am able to send you the information on. If you are completing the online version, the same tick box will appear and you will be required to click this to confirm, and again provide a contact.

I have further questions, or a complaint to make?

If you have any questions about taking part please feel free to email me on emma.townsend@uea.ac.uk to discuss the research further.

If you have any complaints about any aspect of the study, please contact my supervisor, Dr Adrian Leddy on A.Leddy@UEA.ac.uk. (01603 456151 extension 3546)

Data Transparency

University of East of Anglia is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. University of East of Anglia will keep identifiable information about you for 10 years after the study has finished/ until 2030.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting me on emma.townsend@uea.ac.uk

Your clinician in the NHS will collect information from you for this research study in accordance with our instructions.

Your clinician in the NHS will use your name and contact details to contact you about the research study, and make sure that relevant information about the study is recorded for your care, and to oversee the quality of the study. Individuals from University of East of Anglia and regulatory organisations may look at your research records to check the accuracy of the research study. The NHS will pass these details to University of East of Anglia along with the information collected from you for the study. The only people in University of East of Anglia who will have access to information that identifies you will be people who need to contact you to inform you of a summary of the research if requested, to inform you of the prize draw results or to audit the data collection process. The people who analyse the information will not be able to identify you and will not be able to find out your name or contact details.

The NHS will keep identifiable information about you from this study until 2030.

Thank you for taking the time to read through this information.

Appendix E: Participant Information Sheet – Online Version

University of East Anglia

Clinical Psychology Doctorate Programme
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich NR4 7TJ
Email:Emma.Townsend@uea.ac.uk
Tel: 01603 456151

Ageing Stereotypes and Attitudes to Ageing Among Older Adults

Information Sheet

I would like to invite you to take part in this research study; before you decide, please take time to read and consider the following information in order to understand why the research is being done, and what it would involve for you.

Life expectancy has significantly increased and people are living for much longer than before. This means the number of people experiencing the process of ageing is also increasing. It is therefore important to understand factors associated with the individual and shared experience of ageing.

Purpose of the study

The purpose of the research is to investigate your experience of ageing. We are particularly interested in how depression and/or anxiety might impact on these experiences of getting older.

What will be involved if I take part in this research?

You will be presented with 4 short questionnaires, and a questionnaire asking for basic demographic details, for example your age and gender. We will not be asking for any identifiable information and so your responses remain anonymous. I would like you to complete these questionnaires in full following the instructions provided. This should take around 15-25 minutes in total. This can be completed using a computer, laptop, tablet or mobile phone.

What are the benefits of taking part?

There will be no direct benefit in taking part in this study. However, you will be contributing to research hoping to improve our understanding of the impact anxiety and depression may have on how we experience ageing. These findings can then be used to try and improve existing treatments for these conditions.

As a thank you for spending the time to take part in this study, we are offering a prize draw of a £25 amazon voucher. In order to enter, a tick box will be provided with the consent form

to confirm you wish to enter the draw and you will be asked to provide a contact. This is so I am able to let you know if you are successful.

Will my responses be kept confidential?

Your responses remain confidential and are stored securely. No personal details will be released. All information collected as part of this study will be stored in accordance with the General Data Protection Regulation (GDPR) and access will be restricted to me and my supervisors.

Can I withdraw from the study?

You can withdraw from completing the questionnaires at any time without giving a reason. However, please note that once the questionnaires have been submitted, the responses will be collated into an anonymous database and it will not be possible to identify individual responses.

It is up to you to decide whether or not to take part. If you have any questions before making a decision, please do contact me on my email below. Should you decide to participate, you will be asked to click to confirm your consent and participation using a simple online consent form.

Are there any risks to taking part?

You may feel some issues raised are of a sensitive nature; however, it is unlikely that taking part in this research will cause distress. If this does happen, we want to encourage you to consult your GP for further support. Alternatively, The Samaritans offer a safe place to talk, and can be contacted at any time on 116 123.

Will I be told about the findings of the study?

If you would like a copy of the summary report, there will be a tick box provided with the consent form in which you can confirm this, you will be asked to provide a contact that I am able to send you the information on.

I have further questions, or a complaint to make?

If you have any questions about taking part please feel free to email me on emma.townsend@uea.ac.uk to discuss the research further.

If you have any complaints about any aspect of the study, please contact my supervisor, Dr Adrian Leddy on A.Leddy@UEA.ac.uk. (01603 456151 extension 3546)

Data Transparency

University of East of Anglia is the sponsor for this study based in the United Kingdom. We will be using information from you in order to undertake this study and will act as the data controller for this study. This means that we are responsible for looking after your information and using it properly. University of East of Anglia will keep identifiable information about you for 10 years after the study has finished/ until 2030.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already

obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible.

You can find out more about how we use your information by contacting me on emma.townsend@uea.ac.uk

The only people in University of East of Anglia who will have access to information that identifies you will be people who need to contact you to inform you of a summary of the research if requested, to inform you of the prize draw results or to audit the data collection process. The people who analyse the information will not be able to identify you and will not be able to find out your name or contact details.

Thank you for taking the time to read through this information.

Appendix F: Consent form – Clinical Version

Clinical Psychology Doctorate Programme
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich NR4 7TJ
Email:Emma.Townsend@uea.ac.uk
Tel: 01603 456151

Ageing Stereotypes and Attitudes to Ageing Among Older Adults

Name of Researcher: Emma Townsend

	Please initial box
1. I confirm that I have read the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
2. I understand that I do not have to give consent, and that in withholding my consent this would not affect my future care (if applicable) in any way.	☐
3. I understand that my participation is voluntary and that I am free to withdraw at any time during completion of the study without giving any reason.	☐
4. I understand that I will not be able to withdraw from the study once I have submitted my answers as all information will be kept anonymous, and therefore will not be identifiable.	☐
5. I agree to take part in the above study.	☐

Name of Participant	Date	Signature

Name of Person taking consent	Date	Signature

Appendix G: Consent Form – Online Version

Clinical Psychology Doctorate Programme
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich NR4 7TJ
Email:Emma.Townsend@uea.ac.uk
Tel: 01603 456151

Ageing Stereotypes and Attitudes to Ageing Among Older Adults

Name of Researcher: Emma Townsend

	Please initial box
6. I confirm that I have read the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
7. I understand that I do not have to give consent, and that in withholding my consent this would not affect my future care (if applicable) in any way.	☐
8. I understand that my participation is voluntary and that I am free to withdraw at any time during completion of the study without giving any reason.	☐
9. I understand that I will not be able to withdraw from the study once I have submitted my answers as all information will be kept anonymous, and therefore will not be identifiable.	☐
10. I agree to take part in the above study.	☐

Appendix H: Consent form for Summary of Results and Prize Draw

Clinical Psychology Doctorate Programme
Faculty of Medicine and Health Sciences
University of East Anglia
Norwich NR4 7TJ
Email:Emma.Townsend@uea.ac.uk
Tel: 01603 456151

Ageing Stereotypes and Attitudes to Ageing Among Older Adults

Name of Researcher: Emma Townsend

Please tick box

I confirm that I wish to be entered in to the prize draw of £25 Amazon Vouchers ☐

I would like to be advised of the findings of the study in the form of a summary report ☐

If you have ticked either of the boxes above, please provide a contact that you would be happy for me to get in touch with you on (for example, an email address, postal address, or telephone number)

_____

Appendix I: Demographics Form

Please do not write your name on this form. For the following items, please select the *one* response that is most descriptive of you or fill in the blank as appropriate.

1. Age:

2. Gender:

Male		Non-binary/ third gender	
Female		Prefer not to say	
Prefer to self-describe:			

3. Relationship status:

Single		Co-habiting		
Married		Widowed		
Prefer not to say		Prefer to self-describe:		

4. Ethnicity:

White		**Asian or Asian British**	
British		Indian	
Irish		Pakistani	
Any other White background		Bangladeshi	
Mixed		Any other Asian background	
White and Black Carribean		**Other Ethnic Groups**	
White and Black African		Chinese	
White and Asian		Any other ethnic group	
Any other mixed background			
Black or Black British			
Caribbean			
African			
Any other Black background			

5. What Country do you live in?

6. Do you consider yourselves to be generally healthy:

Yes		No	

7. Do you consider yourself to have a physical health problem?

Yes		No	
If yes, please state if comfortable to:			

7. Are you generally satisfied with your experiences of ageing?

Yes		No	

Appendix J: Geriatric Depression Scale

INSTRUCTIONS: Please circle the best answer for how you felt over the past week:

1. Are you basically satisfied with your life? YES / NO

2. Do you often get bored? YES / NO

3. Do you often feel helpless? YES / NO

4. Do you prefer to stay home rather than going out and doing new things? YES / NO

5. Do you often feel pretty worthless the way you are now? YES / NO

Appendix K: Geriatric Anxiety Inventory

GAI

Please answer the items according to how you've felt in the last week.

Tick the column under **Agree** if you mostly agree that the item describes you;
tick the column under **Disagree** if you mostly disagree that the item describes you.

	Agree	Disagree
I worry a lot of the time.		
I find it difficult to make a decision.		
I often feel jumpy.		
I find it hard to relax.		
I often cannot enjoy things because of my worries.		
Little things bother me a lot.		
I often feel like I have butterflies in my stomach.		
I think of myself as a worrier.		
I can't help worrying about even trivial things.		
I often feel nervous.		
My own thoughts often make me anxious.		
I get an upset stomach due to my worrying.		
I think of myself as a nervous person.		
I always anticipate the worst will happen.		
I often feel shaky inside.		
I think that my worries interfere with my life.		
My worries often overwhelm me.		
I sometimes feel a great knot in my stomach.		
I miss out on things because I worry too much.		
I often feel upset.		

Original GAI reference: Pachana, N.A., Byrne, G.J., Siddle, H., Koloski, N., Harley. E., & Arnold, E. (2007). Development and validation of the Geriatric Anxiety Inventory. International Psychogeriatrics, 19, 103-114.

Appendix L: Attitudes towards Aging Questionnaire

ATTITUDES TO AGEING QUESTIONNAIRE (AAQ-24)

The following questions ask **how much you agree** with the following statements. If you agree with the statements an extreme amount circle the number next to "strongly agree". If you do not agree with the statements at all, circle the number next to "Strongly disagree". You should circle one of the numbers in between if you wish to indicate your answer lies somewhere between "Strongly disagree" and "Strongly agree".

1. As people get older they are better able to cope with life.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

2. It is a privilege to grow old.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

3. Old age is a time of loneliness.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

4. Wisdom comes with age.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

5. There are many pleasant things about growing older.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

6. Old age is a depressing time of life.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

7. It is important to take exercise at any age.

Strongly disagree 1	Disagree 2	Uncertain 3	Agree 4	Strongly agree 5

The following questions ask **how true** the following statements are for you. If the statement is "Extremely" true for you, circle the number next to "Extremely true". If the statements are not true for you at all, circle the number next to "Not at all true". You should circle one of the numbers in between if you wish to indicate your answer lies somewhere between "Not at all true" and "Extremely true".

8. Growing older has been easier than I thought.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

9. I find it more difficult to talk about my feelings as I get older.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

10. I am more accepting of myself as I have grown older.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

11. I don't feel old.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

12. I see old age mainly as a time of loss.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

13. My identity is not defined by my age.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

14. I have more energy now than I expected for my age.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

15. I am losing my physical independence as I get older.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

16. Problems with my physical health do not hold me back from doing what I want to.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

17. As I get older, I find it more difficult to make new friends.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

18. It is very important to pass on the benefits of my experiences to younger people.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

19. I believe my life has made a difference.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

20. I don’t feel involved in society now that I am older.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

21. I want to give a good example to younger people.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

22. I feel excluded from things because of my age.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

23. My health is better than I expected for my age.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

24. I keep myself as fit and active as possible by exercising.

Not at all true	Slightly true	Moderately true	Very true	Extremely true
1	2	3	4	5

THANK YOU FOR YOUR HELP!

Appendix M: Image of Aging Scale

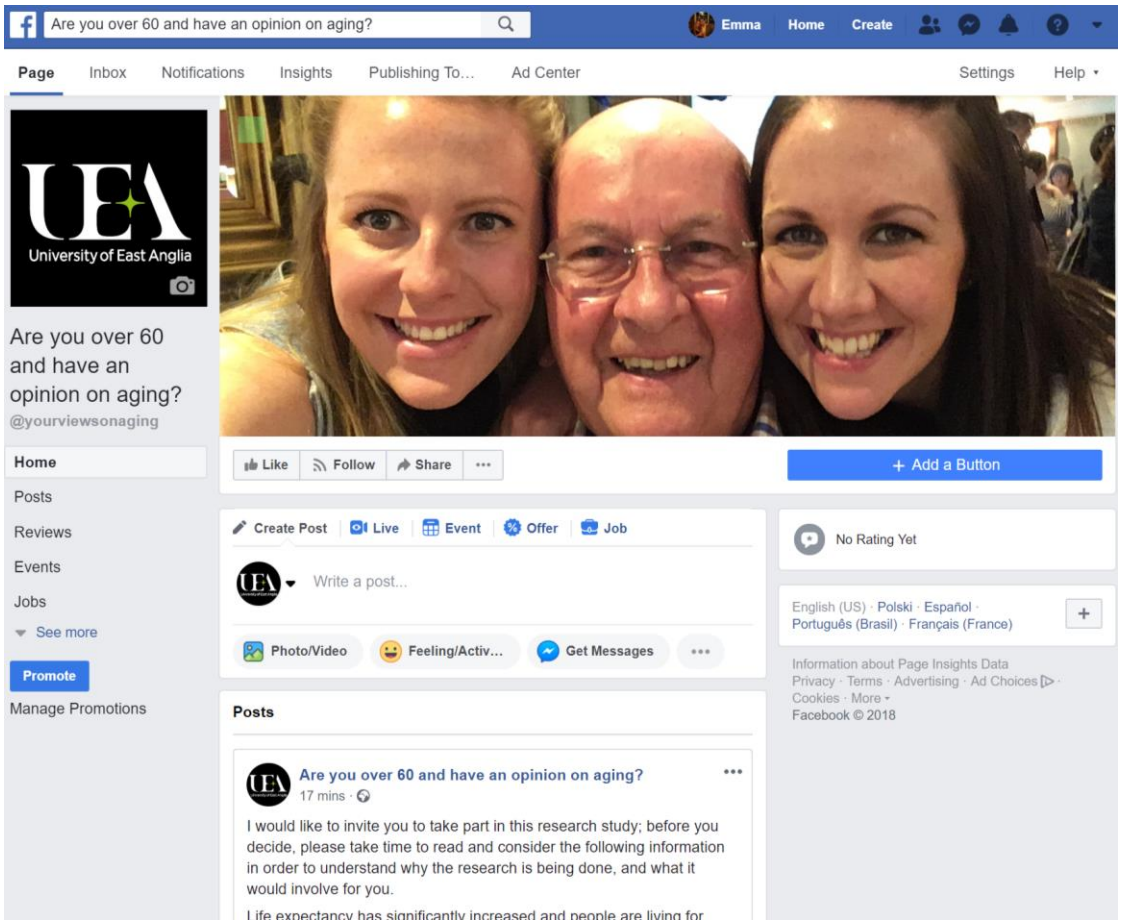
Directions: I am interested in knowing when you think of **old people** in general (**not** including yourself), how much the following words match the images or pictures that you have. There are no right or wrong answers. After each word or phrase, please circle the number from 0 to 6 that best shows how well the word matches your image or picture of **old people** in general (**not** including yourself) with 0 being furthest from what you think and 6 being closest to what you think.

		0---------1---------2---------3--------4---------5---------6						
		does not match my image						completely matches my image
a.	healthy	0	1	2	3	4	5	6
b.	wrinkled	0	1	2	3	4	5	6
c.	family-oriented	0	1	2	3	4	5	6
d.	grumpy	0	1	2	3	4	5	6
e.	capable	0	1	2	3	4	5	6
f.	dying	0	1	2	3	4	5	6
g.	active	0	1	2	3	4	5	6
h.	senile	0	1	2	3	4	5	6
i.	positive outlook	0	1	2	3	4	5	6
j.	given up	0	1	2	3	4	5	6
k.	well-groomed	0	1	2	3	4	5	6
l.	walks slowly	0	1	2	3	4	5	6
m.	alone	0	1	2	3	4	5	6
n.	will-to-live	0	1	2	3	4	5	6
o.	helpless	0	1	2	3	4	5	6
p.	wise	0	1	2	3	4	5	6

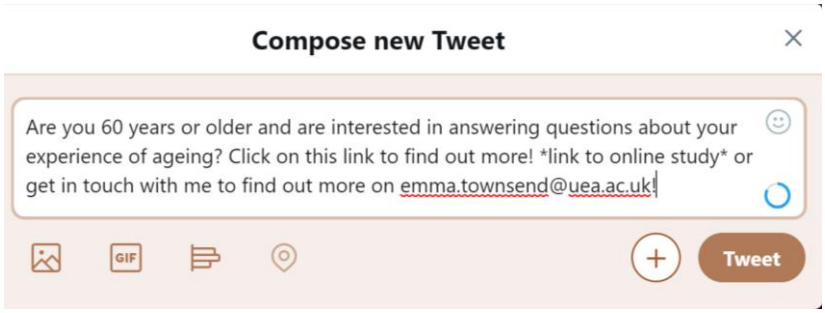
q.	sick	0	1	2	3	4	5	6
r.	full of life	0	1	2	3	4	5	6

Appendix N: Examples of Social Media

Facebook



Twitter



Appendix O: Ethical Approval

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

NHS
Health Research Authority

Miss Emma Townsend
98 Main Road
Wilby
Wellingborough
NN8 2UE

Email: hra.approval@nhs.net
Research-permissions@wales.nhs.uk

20 March 2019

Dear Miss Townsend

HRA and Health and Care Research Wales (HCRW) Approval Letter

Study title:	**The Effect of Depression and Anxiety on Ageing Stereotypes and Attitudes to Ageing among Older Adults**
IRAS project ID:	**248356**
REC reference:	**19/LO/0409**
Sponsor	**University of East Anglia**

I am pleased to confirm that **HRA and Health and Care Research Wales (HCRW) Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further relating to this application.

How should I continue to work with participating NHS organisations in England and Wales?
You should now provide a copy of this letter to all participating NHS organisations in England and Wales, as well as any documentation that has been updated as a result of the assessment.

Following the arranging of capacity and capability, participating NHS organisations should **formally confirm** their capacity and capability to undertake the study. How this will be confirmed is detailed in the "*summary of assessment*" section towards the end of this letter.

You should provide, if you have not already done so, detailed instructions to each organisation as to how you will notify them that research activities may commence at site following their confirmation of capacity and capability (e.g. provision by you of a 'green light' email, formal notification following a site initiation visit, activities may commence immediately following confirmation by participating organisation, etc.).

It is important that you involve both the research management function (e.g. R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details of the research management function for each organisation can be accessed here.

IRAS project ID	248356

How should I work with participating NHS/HSC organisations in Northern Ireland and Scotland?
HRA and HCRW Approval does not apply to NHS/HSC organisations within the devolved administrations of Northern Ireland and Scotland.

If you indicated in your IRAS form that you do have participating organisations in either of these devolved administrations, the final document set and the study wide governance report (including this letter) has been sent to the coordinating centre of each participating nation. You should work with the relevant national coordinating functions to ensure any nation specific checks are complete, and with each site so that they are able to give management permission for the study to begin.

Please see IRAS Help for information on working with NHS/HSC organisations in Northern Ireland and Scotland.

How should I work with participating non-NHS organisations?
HRA and HCRW Approval does not apply to non-NHS organisations. You should work with your non-NHS organisations to obtain local agreement in accordance with their procedures.

What are my notification responsibilities during the study?
The document "*After Ethical Review – guidance for sponsors and investigators*", issued with your REC favourable opinion, gives detailed guidance on reporting expectations for studies, including:

- Registration of research
- Notifying amendments
- Notifying the end of the study

The HRA website also provides guidance on these topics, and is updated in the light of changes in reporting expectations or procedures.

I am a participating NHS organisation in England or Wales. What should I do once I receive this letter?
You should work with the applicant and sponsor to complete any outstanding arrangements so you are able to confirm capacity and capability in line with the information provided in this letter.

The sponsor contact for this application is as follows:

Name: Ms Mercedes Mills
Tel: 01603 59 1721
Email: M.Mills@uea.ac.uk

Who should I contact for further information?
Please do not hesitate to contact me for assistance with this application. My contact details are below.

Your IRAS project ID is **248356.** Please quote this on all correspondence.

Yours sincerely

IRAS project ID	248356

Maeve Ip Groot Bluemink
Assessor

Email: hra.approval@nhs.net

Copy to: *Ms Mercedes Mills, University of East Anglia – Sponsor Contact*
Ms Jane Gaffa, Addenbrooke's University Hospital – Lead R&D Contact

Cambridgeshire and Peterborough NHS
NHS Foundation Trust

Understanding mental health, understanding people

Research and Development Department

Joint Research Office
Box 277
Addenbrooke's Hospital
Hills Road
Cambridge
CB2 0QQ

Direct Dial: 01223 256407 ext 256407
E-mail: mary-beth.sherwood@cpft.nhs.uk
www.cpft.nhs.uk

R&D ref: M00940

Miss Emma Townsend
University of East Anglia

21 June 2019

Dear Miss Emma Townsend

IRAS ID: 248356
The Effect of Depression and Anxiety on Ageing Stereotypes and Attitudes to Ageing among Older Adult
REC Ref: 19/LO/0409

Thank you for sending details of the above named study.

The R&D department has received the HRA Approval letter and reviewed the study documents. The project has been allocated the internal R&D reference number of **M00940**. Please quote this in all future correspondence regarding this study.

Capacity and capability to conduct this study at Cambridgeshire & Peterborough NHS Foundation Trust is confirmed.

We would like to take this opportunity to remind you of your responsibilities under the terms of the Research Governance Framework for Researchers, Chief Investigators, Principal Investigators and Research Sponsors and to also of the requirement to notify R&D of any amendments or changes made to this study.

You will be aware that the Trust is subject to national reporting requirements for first patient recruitment within 70 days. Further details on this can be found on the NIHR website:
http://www.nihr.ac.uk/policy-and-standards/faster-easier-clinical-research.htm
If you have any questions or concerns about this, please contact me.

I wish you every success with this study.

Yours sincerely

Stephen Kelleher
Senior R&D Manager

Carbon Copy: Dr Kate Nurser

Appendix P: Ethical Amendment Documentation

NHS
Health Research Authority

London - Hampstead Research Ethics Committee

Barlow House
3rd Floor
4 Minshull Street
Manchester
M1 3DZ

Please note: This is the favourable opinion of the REC only and does not allow the amendment to be implemented at NHS sites in England until the outcome of the HRA assessment has been confirmed.

29 August 2019

Miss Emma Townsend
98 Main Road
Wilby
Wellingborough
NN8 2UE

Dear Miss Townsend

Study title:	**The Effect of Depression and Anxiety on Ageing Stereotypes and Attitudes to Ageing among Older Adults**
REC reference:	**19/LO/0409**
Protocol number:	**not applicable**
Amendment number:	**1**
Amendment date:	**16 July 2019**
IRAS project ID:	**248356**

The above amendment was reviewed held on 02 August 2019 by the Sub-Committee in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

No ethical issues were raised.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Notice of Substantial Amendment (non-CTIMP) [IRAS form]	1	16 July 2019
Research protocol or project proposal [Protocol v.2]	2	10 July 2019
Research protocol or project proposal [Original protocol]	1	30 January 2019

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities– see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

19/LO/0409:	**Please quote this number on all correspondence**

Yours sincerely

Miss Stephanie Ellis, BEM
Chair

E-mail: NRESCommittee.London-Hampstead@nhs.net

Enclosures: *List of names and professions of members who took part in the review*

Copy to: *Miss Emma Townsend*