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Media portrayal of old age and its effects on attitudes in older people: findings from a series of studies

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Mass media portrayal of old age plays a great role in social perceptions of aging. However, there are hardly any empirical findings on the effects on recipients or to what extent this can change attitudes, especially amongst older people. Three types of media portrayals of old age in German news magazines were determined and used as stimulus material. In 2020, 910 participants (from 60 years) were confronted with different age frames in the course of a quasi-experimental survey. In order to substantiate the results, in 2022, 36 focused interviews were conducted with older people each of whom was presented with an age frame. This article links the central findings of both studies, with a focus on the qualitative study. The survey results showed that presenting a negative age frame led to an improvement in the self-image of old age whereas the public image of old age deteriorated significantly. After presenting a positive frame, the public image improved greatly while the self-image decreased. The interviews confirm these results. Type of reaction upon reception of the negative age frame varied between approval and clear signs of consternation. However, interviewees did not relate with the older people portrayed with personal aging often felt to be at odds with the portrayal of age shown. The positive frame was first received with pleasure and curiosity. Even so, interviewees became unsettled about how 'modern' aging is portrayed, some of them showing insecurity that they could not fulfil the characteristics and requirements of 'modern' aging. Media portrayal of age seems not to have the effects on older people as might be expected. Negative effects appear such as media portrayal making older recipients aware of their own age by presenting age in an exaggeratedly positive light in the "best agers" frame. In view of these results, the theory of social comparison processes may be used by which the media provides recipients with standards of comparison.

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Introduction

Even if age is a progressive process and therefore a relative trait, many people have certain intuitive ideas as to which traits they can use to identify older people (Green, 1993; Saake, 2006; Schwender and Petersen, 2016). Underlying images of old age may act as stereotypes influencing individual behaviour (Freund and Smith, 1999; Kaplan and Chivers, 2018; Lehr and Niederfranke, 1991; Peel, 2014; Rothermund, 2009; Tukachinsky, 2015). Today, mass media play a decisive role when it comes to shaping and staging images of aging (Kessler, 2009; Kessler et al., 2010). The media select and emphasise certain age aspects (Bosch, 1990; Mayer, 2009). This causes coherent portrayal and interpretation patterns that lead to polarising visual and other attributes with regard to the final phase of life (Erlemeier, 1998; Kessler et al., 2004). Public images of old age and aging are particularly important in countries that are undergoing significant demographic change as these portrayal patterns are part of social negotiation processes on how to deal with aging and the relationship between generations, including the welfare state (Kessler and Blachetta, 2018; Kessler and Bowen, 2020; Kessler and Staudinger, 2006). Almost the whole of Europe has an aging population, but this is especially severe in the Federal Republic of Germany. In Germany, every second citizen is older than 45 and every fifth is older than 66 (European Commission, 2020).

Research into images of aging in the media has largely consisted of analysing media content and drawing conclusions on their effects (Bosch, 1990; Kessler and Schwender, 2012; Kessler et al., 2010; Köttl et al., 2022; Saake, 2006; Zhang et al., 2006). So far, there are hardly any findings on the question of which (attitude-changing) effects media portrayals of old age can have on recipients (Kessler, 2009). A variety of potential effects are conceivable that may be illustrated by a series of theories from socio-psychological attitude research. These effects focus on the mutual interplay between the public and the self-image of old age (Baltes and Baltes, 1990; Kite et al., 2002; Robinson et al., 2004). The public image of old age may be seen as a kind of 'external view' of the final phase of life that contains supposedly typical characteristics as well as (gender-specific) behaviour and role expectations (Vernon et al., 1991). The self-image of old age mainly consists of the subjective experience of old age and a projection of personal aging into the future. These theories especially project on older people as they may be expected to have a public and self-image of old age (Schwender and Petersen, 2016).

According to *terror management theory*, confrontation with an image of old age that includes frailty, helplessness, and mortality is perceived as threatening (Martens et al., 2005). The *internalisation hypothesis* proposes that older people tend to internalise negative age stereotypes (Pinquart, 2002), harming self-concept and resilience (Filipp and Mayer, 1999; Hummert et al., 1994; Oswald, 1991). The internalisation hypothesis is close to the "ageism" postulate, which assumes a higher prevalence of mental and physical illness in old age and increased costs for the healthcare system due to public stereotyping of older people (Levy et al., 2020). Conversely, positive images of old age may be assumed to support self-image (Pohlmann, 2008). On the other hand, *resilience theory* suggests that there is a certain barrier to transferring negative public images of old age to the self-image as older people strive to protect their self-concept (Wagnild, 2003).

The *comparative hypothesis* considers images of age as reference points for social comparison. This entails developing self-esteem-serving downward comparison with the negative old-age stereotype instead of integrating negative information into self-image (Lehr and Niederfranke, 1991; Mares and Cantor, 1992). In this way, the negative image of old age is instrumentalised to improve self-esteem (Kessler, 2009). The *reinforcer hypothesis* assumes that preconditions of self-image strongly affect the way images of old age are received and experienced (Harwood, 1999; Rothermund, 2009; Hobza et al., 2007). This demonstrates that resilience to negative images of old age relies on an intact self-image. Accordingly, older people with an intact self-image perceive mainly positive aspects of public age stereotypes coming towards them and may also be able to draw a self-esteem-serving upward comparison.

Research interest. The study to be presented is part of a multi-part study series, focusing on the following research topic: How do older people react to media portrayals of old age? How do (prototypical) media portrayals of old age affect attitudes towards old age (public image of old age) and personal aging (self-image of old age)?

We used the framing approach as a basis for our research (Dahinden, 2006; Matthes and Kohring, 2008; Scheufele, 1999). Images of old age are operationalised as specific patterns of portrayal and interpretation (frames) emphasising certain aspects of old age, therefore forcing a specific stereotype. In the course of our study, we selected older people as subjects as it can be assumed that they process media representations of age and aging in a specific way.

Methods

Study design and setting. So far, studies on the effects that media images of age and aging can have are still lacking. In 2020, a quasi-experimental written survey was conducted that aimed at analysing how older people react to impactful age portrayals (Wangler and Jansky, 2020). For this purpose, we used a prototypical age frame placed in the middle of the questionnaire. Among other things, we measured how the stimulus affected central indicators of public and self-image of old age (comparison of three items queried before and after reception). The anonymous survey was conducted with support from a preliminary content analysis study.

In order to examine how far these quantitative results can be confirmed and to gain additional knowledge, a qualitative study using semi-standardised interviews was carried out in the autumn of 2021. Again, older people were confronted with the prototypical age frames that were derived in advance of the quantitative survey. This article links the central findings of both studies, with a focus on the qualitative study.

Preliminary study for content analysis. In 2020, qualitative content analysis was performed in order to identify common portrayal patterns of age and aging. This step was necessary to obtain meaningful stimulus material for the questionnaire experiment.

Articles in the German-language news magazines *Spiegel*, *Stern* and *Focus* were analysed using the *LexisNexis* database (Wangler and Jansky, 2020). Access criteria were defined as follows: release period from 1 January 1999 to 31 December 2019, article length of 500 words or more, topic of the article focused on old age (content criterion).

Content analysis (Mayring, 2014) yielded a category system (see Appendix 1) containing the frame-defining indicators, including: Topic, activity/passiveness of older people, number of older people, the environment of older people, gender of older people, social class of older people, old–young relationship, old–old relationship, the role of older people. A second material review yielded the frames using the indicators.

Stimulus material was then selected. The first choice for the respective frame was the article with the most typical major indicators without competing frames. The post was then adjusted according to the following criteria:

- Max. 400 words
- Preservation of important personal examples in the article
- Extensive abridgement without altering core statements and arguments

The stimulus material was pretested in advance of the quantitative study (Wangler and Jansky, 2020).

Recruitment and implementation. For the survey, we recruited our study participants in the German federal states of North Rhine-Westphalia, Hesse, and Rhineland-Palatinate; recruits were usually groups of older people recruited by contacting local and municipal pensioners' and senior citizens' associations. A phone or e-mail request was always made in advance to obtain general permission to visit the relevant senior citizens' association, recruit study participants, and carry out the study. The experimenter was the first author. Participants were informed about the study as well as our intention to publish anonymous data and asked for consent. The study participants were instructed not to scroll forwards or backward when filling out the form. We placed particular importance on not informing respondents of the research interest until after the survey had been completed and the questionnaires collected to prevent strategic response behaviour.

The survey involved three experimental groups of the same size and structure in terms of age and gender, each of which received an age frame.

The interviewees for the qualitative study corresponded to a broad mix (in terms of gender, age, academic qualification, life situation, place of residence and so on), matching the sociodemographic breadth of the survey sample (see sampling). These interviewees were recruited from amongst distant acquaintances of the first author and interviewed face-to-face between July and November 2021.

Interviewees were sent an explanation of the topic and declaration of consent to sign before the interview and additional information such as assurance of anonymisation.

All 36 interviews were conducted verbally and personally by the authors in turn between September and December 2021 (interview duration: 40–80 min). The interviews were recorded on audio.

Sampling. A total of 910 survey participants completed the questionnaire in full (43 incomplete, not included in the analysis). Respondents were aged between 60 and 94; the average age was 72 (median: 71, s: 7.6). Of the participants, 47% were male and 53% female. Other characteristics of the total sample were:

- Nationality: 94% German, 6% other.
- Living situation: 79% own apartment, 12% retirement home/care home, 9% other.
- Number of people in the household: 25% living alone, 69% two people, 6% more than two people
- Highest educational qualification: 13% lower secondary, 18% upper secondary, 8% high school matriculation grade, 28% university graduation, 33% professional qualification. The qualitative interviews were conducted with older people between the ages of 60 and 90. Of the interviewees, 17 were male and 19 female. The sample comprised the following:
- Nationality: 30 German, 6 other.
- Living situation: 26 own apartments, 7 retirement home/care homes, 3 others.

- Number of people in the household: 13 living alone, 21 two people, 2 more than two people
- Highest educational qualification: 6 lower secondary, 7 upper secondary, 5 high school matriculation grades, 9 university graduation, 9 professional qualifications.

Research instruments. The survey instrument (see Appendix 2) was developed inductively and deductively. Since there was no comparable work on the subject under investigation, the instrument had to be developed from scratch. For this purpose, a detailed literature analysis was first carried out. When developing the questionnaire, studies were consulted that deal with the potential effects of media representations of age (inter alia Filipp and Mayer, 1999; Hobza et al., 2007; Hummert et al., 1994; Kessler, 2009; Kessler and Schwender, 2012; Kessler et al., 2010; Levy et al., 2020; Mares and Cantor, 1992; Rothermund, 2009; Schwender and Petersen, 2016).

The final survey comprises the following components:

- Component 1: Image of old age, before
- Component 2: (Pre)conditions of reception
- Component 3: Stimulus (one age frame per experimental group)
- Component 4: Received image of old age
- Component 5: Image of old age, after
- Sociodemographic characteristics

The study was focused on selected indicators of public and self-image of old age (components 1 and 4) representing the dependent variable in the study. These indicators were queried before and after a confrontation with the stimulus (independent variable). The stimulus included a prototypical age frame. The received image of old age (component 3) was also determined, relating to the perception and assessment of age portrayal. Finally, selected (pre-)conditions of reception (component 2) and sociodemographic characteristics (component 5) were included as moderating variables.

The indicators of public and self-image of old age were taken from the German Aging Survey (Motel-Klingebiel et al., 2009).

In the course of the focused interviews, each participant was confronted with a prototypical age frame (12 per frame). The interview guidelines (see Appendix 3) concentrated on the following points:

- General questions on public and self-image of old age (before the confrontation with a frame article)
- Received image of old age:

  Presentation of older people (asking participants to repeat the content in their own words)
  Thoughts and feelings (accompanying and immediately after reception)
  (Overall) impression of the article, plausibility of the portrayal and relationship with reality
  Identification with the portrayal

- Querying how older people are portrayed in the media (respondents gave an assessment or impression based on the stimulus)

Data analysis. Apart from descriptive analysis, we used Student's t-test for dependent samples (repeated measurements) to determine significant differences within the experimental groups. The difference in means was tested with significance assumed at $p < 0.001$.

Table 1 Frame description based on selected indicators.

Frame	1: Age as decline	2: Age as a (super) power	3: Age as a new dawn
Topical context	Care, social policy, illness/death, euthanasia	Pension and social policy, demographic change, old age and senior citizen lobbies, political parties, intergenerational justice and conflicts	Health and fitness, consumption/lifestyle, labour market, electronics/technology/media, volunteering, (further) education, family and partnership
Role of older people	Passive	Active	Active
Relationship between old and young	Dependent relationship	Tensive or conflicting relationship	Harmonic to neutral relationship
Evaluation tendency with regard to old age	Negative	Negative	Positive

In the qualitative study, there were indications of a theoretical saturation after 27 interviews. The term theoretical saturation is used if the collection of additional data and its analysis would not promote any new aspects of a category and, thus, no new findings would come to light.

For the focused interviews, the first author evaluated the transcripts prepared after data collection using qualitative content analysis according to Mayring (2014; MAXQDA software, version 2020). In preparation, the written consultations were summarised with the essential information to gain an overview of the fundamental material. The text was then extracted in individual sentences or paragraphs depending on importance and expressiveness with units to be used in analysis previously determined (context, interview code, original text, paraphrasing, generalisation). The most important core statements were isolated, abstracted and summarised before forming categories. The categorical system created was structured closely to the guidelines and repeatedly reviewed and modified as necessary during evaluation. Here, we focused on forming logical categories from the various opinions and experiences. We used the COREQ guidelines as reporting statements, as they cover the reporting of studies using interviews and focus groups.

Results

Frame identification. The appropriately adapted stimulus articles 1–3 in Appendix 3 refer to the age frames shown (Wangler and Jansky, 2020).

We identified three recurring and polarising age frames characterised by connection to demographic change, intergenerational relations, and the welfare state as topics (see Table 1):

- Frame 1—'age as decline'—models age as an all-encompassing problem and unpleasant fate. This article portrayed a phase of life of dire helplessness controlled by others, especially in the example of elderly people housed in care homes. According to this frame, older people cannot fight against the injustice they are subjected to but are often left at the mercy of degrading everyday situations. This is closely linked to the intense loneliness of old age.
- Frame 2—'age as a (super) power'—portrays old age as a power factor reshaping the community politically, economically, and institutionally. Seniors are portrayed as an organised political group increasingly and stridently representing their own interests. Here, older people are shown as a dominant influence and force gaining increasing power in politics and everyday life due to pure demographic development. Old people are portrayed as threatening the younger generation with demands for a better quality of life.
- Frame 3—'age as a new dawn'—assigns an extremely positive image to old age. The article portrays age as late

freedom with happy, fulfilled, and prosperous seniors. The focus is on how the advertising, electronics and health industries reorient themselves towards wealthy 'best agers' in control of their own lives. Mental fitness, joy of life, and physical vitality of older people are also portrayed. The 'young at heart' are seen to be rewriting traditional notions of age by imitating the consumer behaviour and lifestyle of their children and grandchildren.

Results from typologising the interviewees' reactions to the various frames are shown by comparison in Table 2. The main findings will be discussed as follows.

Emotional reaction and article assessment. The interviewees' reaction to the 'age as decline' stimulus article was most homogenous. Interviewees perceived the article as plausible, factual and convincing. Despite a few critical statements, all those interviewed saw a high degree of authenticity. The type of immediate reaction upon reception varied between simple approval of the matter covered and clear signs of consternation and emotional stress.

> "This is a very good article. Yes, the article is right on the head. It is exactly like that. It hurts to read something like that." (I-1m)

In contrast, interviewees regarded the second stimulus article, 'age as a superpower', as implausible, exaggerated, and provocative. Overall, the article did not meet with interviewees' approval. Some were visibly provoked and outraged by what they read, some vehemently questioning the claims made of an older generation all living in prosperity while others remained rather distanced and did not seem to take the portrayal seriously. Some other comments showed an understanding of the situation of younger people and the social problems of demographic change. This referred, for example, to the situation of statutory pension insurance, in which a shrinking number of contributors is faced with a growing number of pension recipients.

> "It's written a bit as if the old people ruled everything. And that the old are greedy and entitled because they always want more money and power. Well, I don't think that's believable." (I-8f)

> "There might be old people like that, but I personally don't know anyone of that sort. That thing about having lots of power is exaggerated and implausible. Some of it's just plain ridiculous." (I-6f)

In contrast, the third frame presenting 'age as a new dawn' initially evoked mainly positive feelings. The article received high approval ratings for plausibility, but also for readability. It was generally received with pleasure, curiosity or fascination for the phenomenon of modern aging; the article was seen as authentic, especially regarding the change in old age by generational

	1: Age as decline	2: Age as a (super) power	3: Age as a new dawn
Table 2 Reception of age frame compared, focused interviews.			
Type of reaction	Agreement; Personal identification; Fear (of aging); Signs of emotional distress	Indignation; Wealth and old age questioned; Indifference; Comparison with other groups with pension claims; Understanding for situation of younger people in some cases	Agreement/affirmation; Joy; Doubts about own aging process
Feedback on article	Authentic; Plausible	Rather inauthentic; Implausible; Mainly portrayal of (overly) powerful, parasitic old age meets with rejection	Rather authentic; rather plausible; Incomplete portrayal; Distinction from today's old age criticised
Identification with the portrayal	No, but personal identification increases with age	No	Yes

comparison. The article was therefore confirmed in spontaneous reactions.

Even so, interviewees became clearly critical and sceptical about how aging was portrayed after reading the whole article and thinking more carefully about it. Interviewees saw the article in a negative light at one important point about the new different and positive aging process differed from its supposedly traditional form. This involved many interviewees showing insecurity on noticing that they could not fulfil the requirements of modern aging as portrayed in the article.

"Traditional people like the granddad sitting at the fireplace with his slippers on smoking his pipe experienced a different time of youth, professional life, family life and so on compared to older people today. It's much more common today for someone active and fit to not really notice their age." (I-11m)

"It says old age doesn't exist anymore, and after that it says something like 'In the past, thirty years ago, age came together with "Waldi" the dachshund.' So that means old people from back in the day were just narrow-minded and stupid. Makes you feel stupid as an old person. Do I have to be like them now? So hyper-agile. What if I'm not like that? What if I have illnesses and limitations? Should that make me feel ashamed?" (I-9f)

Relationship between old and young. After using the stimulus, the interviewees were asked how they assessed the relationship between old and young in the respective article. In the first article, a pronounced relationship between dependency and power-lessness towards the younger generation was perceived, with all the negative consequences that this entails.

"I think these old people are like helpless babies. Only that babies are full of joy and treated lovingly by their parents, but here this helpless baby is just old, and nobody needs or loves it. And that's how they're treated." (I-1m)

The third frame was perceived in such a way that the relationship between older and younger people is cooperative and friendly because older people imitate the way of life of younger people.

"These old folks may be old on paper, but they seem so young, like they have somehow lengthened their lives. Or as if they were starting all over again." (I-35f)

Interviewees that had received the second frame judged noticeably differently from those in the other two groups.

"The whole thing is very confrontational. The old against the young. The old repress everything. It's a horror vision that I can't understand. For me it's more of an attempt to put the old people down and attribute malicious motives to them." (I-18m)

Identification. Despite the emotional dismay expressed after reading the first frame article, interviewees did not relate with the older people portrayed in the article with personal aging often felt to be at odds with the portrayal of old age shown. Some interviewees stated unequivocally how well life was treating them as they aged.

"Okay, I'm old as well and my health isn't the best. But reading this makes me feel like an outsider looking at it all but not really affected by this horror. It actually makes me realise how good life is for me." (I-4m)

"Do I have to feel bad now if I say that I am almost feeling better after reading this? […] Because I realize that we are privileged old people." (I-22f)

The interviewees could not identify with the second frame, which they mainly justified with the depicted intergenerational relationship. Neither those interviewed with nor without children could get used to the confrontational and dominating behaviour of the older generation, as presented in the article.

"Many older people also have children and grandchildren. The people here are strange to me because they don't seem like they have anything to do with the younger generations. […] This makes the article not credible." (I-27m)

In the case of the third frame, it was noticeable that an initially positive assessment of the article was gradually revised on closer reflection. In the further course of the conversation, these interviewees showed doubt and scepticism.

"The more I think about it, the more I realize that, while such an age may superficially be desirable and some long for it, it is actually just a caricature of actual aging." (I-29f)

"It almost looks childish. As if the elderly are not able to arrive at this stage of life. Or they categorically refuse. It is kind of awesome and horrible at the same time." (I-13m)

It is noticeable that this type of presentation caused feelings of guilt in around half of the interviewees who received this frame.

"So now I feel worse than before. I have the feeling that I don't meet modern requirements. This is something that is generally always demonstrated in advertising and in public: The super vital, travel-loving, wealthy and educated grandparents, always on the move." (I-24f)

"Reading this made me realise one thing, I don't fit into this image of older people today, I belong to the lame and lethargic. I've probably left things undone a lot and done a

lot of things wrong and that's why I'm not like one of them." (I-15f)

Selected survey results. In the following, the interview results are to be compared with the central findings of the quantitative study (Wangler and Jansky, 2020).

In the survey, the emotional reactions and the assessment of the article largely corresponded to the interview results. It could be hypothesised that frame 1 primarily triggers pity and depression among the subjects. In contrast, the third frame arouses mostly positive feelings. At the same time, a third of those surveyed stated that this type of extremely positive representation of old age made them feel ashamed that they did not meet the requirements of 'modern' aging. Respondents found frame 1 to be credible, factual, and compelling. Frame 3 also received a high level of approval in terms of credibility, but also clarity. In contrast, respondents considered frame 2 to be clearly implausible, exaggerated and provocative.

After the use of the stimulus, the subjects were asked how they assessed the relationship between old and young. It turned out that after the reception of the second frame, the interviewees increasingly had the feeling that older people and their needs were being neglected. In addition, respondents given this frame were more emphasising that older people have built the foundation of wealth that also benefits younger people. These are indications that the intergenerational conflict staged in the article had an effect on the respondents.

One striking finding from the before/after comparison is that public image for the six repeated items showed significantly greater changes than self-image in most cases (see Table 3). Public and self-image indicators also diverged. Self-image improved moderately for Frame 1 while the public image for others saw considerable deterioration. The third group showed the exact opposite trend. Importantly, public image improved considerably in this case while self-image deteriorated in two items. Medium to strong effect sizes were seen in some cases. No changes to the same extent as in other groups were determined for Frame 2.

Discussion

The series of studies dealt with a question neglected up to now on the effects of media portrayals of age. It was aimed at older people as respondents. As the survey showed, there is a striking divergence between public and self-image indicators of old age in the before-and-after comparison of using the stimulus. Self-image improved moderately on negative portrayal of age whereas public image deteriorated significantly. Positive portrayal of age showed the reverse with public image improved while the self-image deteriorated.

The focused interview findings support this and point in the same direction. It was noticeable that the first frame article (negative portrayal of age) was perceived as depressing, but the interviewees stated how well they were actually doing. Reactions to the third frame (positive portrayal of age) were exactly the opposite. This type of presentation caused feelings of guilt in around half of the interviewees who received this frame.

These results lead to the conclusion that the theory of social comparison processes can be seen as an appropriate explanatory approach (Festinger, 2012; Gazzaniga, 2006; Morvan and O'Connor, 2017). It proposes that media provide recipients with benchmarks for comparison. The 'age as decline' frame demonstrated that interviewees performed a downward social comparison. Confrontation with the drama of being old caused a revaluation in self-image as study participants became aware of how well life was treating them compared to the older people

portrayed. The 'age as a new dawn' frame caused a social upward comparison in the study participants. The 'best agers' frame reduced traditional age expectations to absurdity with the older people's activity and fitness, creating self-doubt amongst the study participants. Various authors refer to the latent potential for discrimination inherent in glorified depictions of age (Hummert et al., 1994; Kite et al., 2002; Thiele et al., 2013; Zhang et al., 2006).

Another aspect is that the assessment of relationships between generations could vary depending on the frame stimulus. Frame 2 suggested fomenting a generational conflict emanating from older people staged in the media to provoke a counter-reaction from older recipients in reference to services and claims from the welfare state, but also allegedly neglectful behaviour from younger people.

Overall, the findings of the qualitative study confirm the quantitative results suggesting attitude-changing effects of media portrayal of age. Like the survey, this study did not determine any substantial differences between age, education, gender groups, or influence of intervening variables; from the authors' point of view, this speaks for the overall potential effectiveness of media-mediated patterns of age portrayal (Kessler and Schwender, 2012; Levy et al., 2020).

This series of studies is compatible with the results of Pinquart (2002), who confronted older people with negative age stereotypes. Pinquart also found that the general assessment of older people deteriorated while self-assessment improved in the experimental group receiving negative information about skills in old age. The Mares and Cantor study (1992) is also worth mentioning; the study found that older people deliberately draw upward and downward social comparisons with older characters on TV. Against this background, the effect of old-age portrayal in the media varies depending on the individual characteristics, motivation, and mood of recipients (Hobza et al., 2007).

Limitations. This series of studies should be understood as an exploratory approach to a largely unexplored area. Despite the large sample and the decisive results confirmed again, the survey, in particular, has various weaknesses:

- These were textual frames.
- The study did not allow for the reception of 'naturally' arising portrayals of age.
- The changes measured in older people's and self-image were short-term effects. This begs the question as to how media portrayal of age affects the longer-term reception process in everyday conditions.
- Changes in public and self-image of age were measured using a very small number of indicators.
- Measuring changes in public and self-image involved a comparison of means at the group level without any before-and-after measurements at the individual level.
- The study also did not measure how easy it is to influence public or self-image relative to subjectively existing preconceptions in relation to age and aging.
- No power analysis was performed to determine the appropriate sample size in advance. This means that the sample may have been too large, and the measured effects were overestimated.

The qualitative study was able to confirm the key findings of the quantitative study and therefore to compensate for some of its weaknesses. With regard to the evaluation of the qualitative interviews, it can be critically noted that a discourse analytic evaluation procedure would have been possible.

Table 3 Public and self-image of old age with repeated measurements (mean values).				
Aging/old age means (to me)…		1: Age as decline (n = 309)	2: Age as a (super) power (n = 303)	3: Age as a new dawn (n = 298)
Constantly increasing anxiety	Self-image Before/after	3.0/3.3* Std. dev. = 0.979; Std. err. = 0.056; T = −5.75; df = 308; Sig. (two-tailed) = 0.000; Cohen's d = 0.33	2.9/2.9 Std. dev. = 0.276; Std. err. = 0.016; T = −0.208; df = 302; Sig. (two-tailed) = 0.835; Cohen's d = 0.03	2.7/2.4* Std. dev. = 0.909; Std. err. = 0.053; T = 4.97; df = 297; Sig. (two-tailed) = 0.000; Cohen's d = 0.29
	Public image Before/after	2.3/1.8* Std. dev. = 0.705; Std. err. = 0.04; T = 12.02; df = 308; Sig. (two-tailed) = 0.000; Cohen's d = 0.68	2.5/2.5 Std. dev. = 0.191; Std. err. = 0.011; T = −0.301; df = 302; Sig. (two-tailed) = 0.764; Cohen's d = 0.01	2.2/2.9* Std. dev. = 0.839; Std. err. = 0.049; T = −14.37; df = 297; Sig. (two-tailed) = 0.000; Cohen's d = 0.83
Still in charge of your own life	Self-image Before/after	1.8/1.5* Std. dev. = 0.824; Std. err. = 0.047; T = 6.14; df = 308; Sig. (two-tailed) = 0.000; Cohen's d = 0.35	1.7/1.7 Std. dev. = 0.181; Std. err. = 0.01; T = −1.26; df = 302; Sig. (two-tailed) = 0.206; Cohen's d = 0.05	1.6/1.9 * Std. dev. = 0.711; Std. err. = 0.041; T = −7.65; df = 297; Sig. (two-tailed) = 0.000; Cohen's d = 0.45
	Public image Before/after	2.3/2.8* Std. dev. = 0.573; Std. err. = 0.033; T = −14.79; df = 308; Sig. (two-tailed) = 0.000; Cohen's d = 0.86	2.2/2.2 Std. dev. = 0.73; Std. err. = 0.042; T = −0.236; df = 302; Sig. (two-tailed) = 0.814; Cohen's d = 0.01	2.3/1.8* Std. dev. = 0.906; Std. err. = 0.052; T = 8.57; df = 297; Sig. (two-tailed) = 0.000; Cohen's d = 0.5
Only interested in yourself	Self-image Before/after	3.5/3.6 Std. dev. = 0.731; Std. err. = 0.042; T = −1.56; df = 308; Sig. (two-tailed) = 0.121; Cohen's d = 0.08	3.6/3.5 Std. dev. = 0.412; Std. err. = 0.024; T = 2.23; df = 302; Sig. (two-tailed) = 0.026; Cohen's d = 0.12	3.2/3.2 Std. dev. = 0.839; Std. err. = 0.049; T = −0.345; df = 297; Sig. (two-tailed) = 0.73; Cohen's d = 0.02
	Public image Before/after	2.7/2.4* Std. dev. = 0.638; Std. err. = 0.036; T = 8.38; df = 308; Sig. (two-tailed) = 0.000; Cohen's d = 0.47	3.1/2.6* Std. dev. = 0.712; Std. err. = 0.041; T = 11.13; df = 302; Sig. (two-tailed) = 0.000; Cohen's d = 0.63	2.6/2.9 * Std. dev. = 0.908; Std. err. = 0.053; T = −6.06; df = 297; Sig. (two-tailed) = 0.000; Cohen's d = 0.35

Low scores = high agreement, four-point Likert scale.
Mean difference between before and after at p < 0.001(*).
Complete wording (from German) for before and after items in self-image: For me personally, aging means (1) I get increasingly anxious; (2) That I'm still in charge of my own life; (3) That I'm only interested in myself.
Complete wording (from German) for before and after items in public image: Old age means (1) Getting anxious about more and more things; (2) Still being in charge of your own life; (3) Only being interested in yourself.

Conclusion

Portrayals of age in the media are of great importance as they have a significant influence on society's perceptions and expectations of old age. Traditionally, portrayals of aging in media products have been subject to content analysis and effects have been anticipated. However, the results of this study show media portrayals of age to be more ambivalent in their effect than the content might suggest. Negative portrayal of age seemed to lead older people to feel more easily confirmed in their supposed deviation from the 'old' category ('It's the others that are old, not me'), whereas (overly) positive portrayals of age could make this distinction more difficult.

Overall, the findings are compatible with the theory of social comparison processes. This proposes that media portrayal may be used for downward and upward comparison. Even if this study only determined short-term effects, the results should be seen as an indication that conclusions on possible effects should not be prematurely drawn from content analysis findings. This would not do justice to the complexity of possible potential influences from portrayals of aging in the media, which further empirical research should address. Future studies should take the complex relationship between the public and self-image into account in the effect of the portrayal of age.

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Author contributions

The authors alone are responsible for the content and the writing of the paper. J.W. prepared, coordinated and implemented the project. Both J.W. and M.J. contributed to the project design, analysis of transcripts and drafting of the manuscript. Both authors read and approved the final manuscript.

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Competing interests

The authors declare no competing interests.

Ethical approval

All methods were carried out in accordance with relevant guidelines and regulations. The Ethics Commission responsible for our federal state informed us that approval by an ethics committee was not necessary.

Informed consent

Written informed consent for participation was obtained from all participants before the start of the study. The survey respondents received information about the purpose of the study and were informed that it was an anonymous survey in accordance with the existing data protection standards. Furthermore, it was made clear that the data will only be used for scientific purposes. Interviewees were sent an explanation of the topic and declaration of consent to sign before the interview, and additional information such as assurance of anonymisation.

Additional information

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