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Reading books in the second half of life: What correlations are there with aspects of quality of life and health?

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The German Ageing Survey (DEAS) is a representative cross-sectional and longitudinal survey of people in the second half of life, which has been conducted since 1996. The present findings on book reading in the second half of life refer to the 2002, 2008, 2011, 2014, 2017 and 2021 surveys when comparing over time; all differentiating analyses refer to the 2017 and 2021 surveys.

Key messages

- **The average number of books read has remained largely stable over the last 20 years.** People between the ages of 46 and 85 read an average of eight to nine books a year between 2008 and 2021, compared to just seven in 2002.
- **Around two-fifths of people in the second half of life are avid readers, reading at least 6 books a year.** A good quarter of all respondents, on the other hand, do not read at all.
- **A differentiation by education and gender clearly shows that highly educated people and women are particularly likely to be avid readers.** In 2021, around half belonged to the group of avid readers, but also a good quarter of respondents with a low level of education. However, reading has nothing to do with age. All age groups read roughly the same amount.
- **Over 85 per cent of avid readers reported positive feelings.** Among non-readers, this proportion was significantly lower at 72 per cent to 79 per cent.
- **Almost two thirds of avid readers rate their health as good or very good.** Among non-readers, on the other hand, there are roughly as many people with poor as good subjective health.
- **In the cognition test conducted in 2017, 96 per cent of avid readers scored well.** This was only the case for around 89 per cent of non-readers.

Introduction

The ability to read is an important prerequisite for education, success on the labour market and social integration. Reading provides pleasure and opens up access to other life experiences. At the same time, the media often evokes a reading crisis¹ – a crisis that is sometimes documented (e.g. Medienpädagogischer Forschungsverbund Südwest c/o Landesanstalt für Kommunikation (LFK) 2021: 20) and sometimes refuted (Börsenverein des Deutschen Buchhandels 2021).

By the second half of life, reading skills have long been acquired and integration into the labour market and society has already taken place. So what significance does reading have for this phase of life in particular? An American study has shown that regular reading has a positive effect on life expectancy. Book readers indeed performed even better than newspapers/magazines readers (Bavishi, Slade, & Levy 2016). This finding was reported in the AOK health magazine as a prevention recommendation (AOK 2021). And as early as 2008, a study out of Jerusalem found that daily reading is associated with fewer feelings of loneliness and lower mortality, at least among older men (Jacobs, Hammerman-Rozenberg, Cohen, & Stessman 2008).

Other international studies also confirm the positive effects of reading books at an advanced age, for example in terms of maintaining cognitive skills, regardless of the level of education (Chang, Wu, & Hsiung 2021).

An important role in the positive effects of reading is played by empathy, social perception and emotional intelligence, which are promoted by reading books (Bavishi et al. 2016). In contrast to the cursory reading of modern media, we are talking here about “deep reading”. If possible, this type of

reading is trained early in life. Cognitive and literary scientist Maryanne Wolf describes the effects on the course of life as follows: “What will happen to young readers who never meet and begin to understand the thoughts and feelings of someone totally different? What will happen to older readers who begin to lose touch with that feeling of empathy for people outside their ken or kin? It is a formula for unwitting ignorance, fear and misunderstanding, that can lead to the belligerent forms of intolerance [...]” (Wolf 2018: 46)

However, to our knowledge, there have been no studies on the importance of reading at an advanced age in Germany to date. Reading research in this area usually focuses on literacy and thus focusses on children, young people or people with a migration background (Stiftung Lesen 2009: 144f). As a result, research is primarily conducted with a view to reading skills and integration, while reading in the second half of life hardly receives attention.

This DZA Aktuell is intended to provide an initial contribution on book reading and possible positive correlations with health-related aspects in the second half of life. The German Ageing Survey not only offers the opportunity to map the number of books read annually by people in the second half of life; it can also relate these results to various other indicators of successful ageing such as emotional well-being, self-rated health and cognitive abilities. The question in the DEAS about the books read each year has not received much analysis before; only one evaluation of the influence of various media on the self-perception of ageing is available (Boeder, Tse, Fruht, & Chan 2021). This showed that television consumption tends to have a negative effect while book and radio consumption tends to have a positive effect on the view of ageing.

¹ The titles of corresponding newspaper articles are, for example, “Die Krise des Lesens” (Frankfurter Allgemeine Zeitung, 12 October 2018), “Das Ende vom Buch” (Die

Zeit, 23 December 2019), “Wir klicken und pöbeln. Wir sollten lesen und denken” (Welt, 02 November 2017).

A positive correlation between reading books and personal assessment of one's own health, emotional well-being and cognitive abilities could suggest that the promotion of reading in childhood and adolescence is not the only important social task, so is bolstering the motivation to read and barrier-free access to reading into old age.

Against this background, this report provides answers and analysis regarding the following questions:

- How many books do people read in the second half of their lives? Has

this changed over time and if so how?

- What is the distribution of non-readers, occasional readers and avid readers by age group, education and gender?
- What differences are there in the assessment of their own emotional well-being and self-rated health and in terms of cognitive abilities between non-readers, occasional readers and avid readers?

Data and methods

The German Ageing Survey (DEAS)

The German Ageing Survey (DEAS) is a representative cross-sectional and longitudinal survey of people in the second half of life. As part of the study, women and men have been regularly surveyed for more than two decades (in 1996, 2002, 2008, 2011, 2014, 2017, 2020 and 2020/21) as they move into old age. This long observation period of more than two decades allows a comprehensive insight into ageing and the life situations of people in the second half of life. In addition, the cohort-sequential design of the study makes it possible to examine ageing in the context of social change. The German Ageing Survey is therefore the central study on age and ageing in Germany. More than 20,000 people have participated in the study so far. People who are 40 years and older at the time of their first participation are surveyed. The participants are selected on the basis of a sample of residents' registration offices stratified by age, gender and region. The data of the German Ageing Survey are therefore representative of the resident population of Germany living in private households in the second half of life.

In all of the surveys used here, both an interview was conducted and a written questionnaire (drop-off) was completed. In the analyses, weighted proportion values and weighted arithmetic means are presented using methods that take stratified sampling into account. Group differences or differences between survey waves are tested for statistical significance. A significance level of $p < 0.05$ is used. If a finding is statistically significant, it can be assumed with at least 95 per cent probability that a detected difference exists, not only in the sample but also in the population living in private households in Germany. If a finding is not statistically significant, it is possible that observed differences in the sample occurred only by chance.

The German Ageing Survey (DEAS) is funded by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ).

Further information on the German Ageing Survey (DEAS) can be found at www.deutscher-alterssurvey.de.

At the core of this DZA Aktuell is the question contained in the written questionnaire *“Have you read books or e-books in your spare time in the past 12 months?”* (the question has been included in the DEAS since 2002; until 2014 only books were asked about, since 2017 also e-books). This is followed by: *“If yes, please indicate, how many books or e-books you have read over the past 12 months”*.

In this DZA Aktuell, reading refers solely to reading books or e-books. The DEAS also asks about reading newspapers (*“How often do you read a newspaper?”*), but this is not included in the analysis here.

The differentiated analysis was categorised into reading types:

- Non-readers
(no books in the last 12 months)
- Occasional readers
(1 to 5 books in the last 12 months)
- Avid readers
(6 or more books in the last 12 months)

Based on standard statistical procedure, implausibly high figures were identified and defined as outliers (4 standard deviations above the mean). These were excluded from the analyses in order to counteract possible distortions. This affected a total of 22 respondents who stated that they had read more than 210 books in one year.

Respondents between the *ages of 46 and 85* were analysed. Due to the sampling design of the DEAS, the age range varies across the waves. In order to allow for a simple comparison between the age groups, the age range of 46 to 85 years was chosen, as this is covered by all surveys.

The upper age limit is set at 85 years, as only a few people in the age groups above this provided information on reading behaviour. The age groups were differentiated as follows: 46 to 55 years (30.1 per cent in 2021), 56 to 65 years (31.6 per cent in 2021; in both lower groups, many respondents still focus on employment and/or family), 66 to 75 years (21.6 per cent

in 2021; transition to and first period of retirement), 76 to 85 years (16.7 per cent; older age with possibly increasing physical impairments).

In order to show *gender differences*, a distinction was made between women (51.7 per cent in 2021) and men (48.3 per cent in 2021).

The categorisation of *educational groups* was based on the internationally comparable ISCED classification (UNESCO 2006). A distinction was made between three education groups. The low-educated group (9.3 per cent in 2021) includes respondents who have not completed vocational training (ISCED 0–2). Respondents with an intermediate level of education (52.2 per cent in 2021) are those who have completed vocational training at a company or vocational school. This also includes respondents with a higher general school-leaving certificate without having completed vocational training (ISCED 3–4). Respondents with a degree from a university of applied sciences, university or higher education institution or who have completed advanced training (vocational, master craftsman, technical school, vocational or technical academy (ISCED 5–6)) are considered highly educated (38.5 per cent in 2021).

In addition to classification according to socio-demographic characteristics, correlations between the annual reading volume and various aspects of quality of life and health were also analysed:

Positive affect is a measure of emotional state. It is assessed in the DEAS using the 5-point PANAS scale (Watson 1988). The question is: *“Please indicate to what extent you have felt this way during the past few months. Use the scale from ‘very slightly or not at all’ to ‘extremely’.*” The ten items asked about positive affect include items such as “Enthusiastic”, “Strong” and “Interested”. The responses were summarised to form a scale value. A high value on the scale means that positive

emotions are experienced more frequently. For the analyses, values between one and three on the scale for positive affect were summarised as “infrequent positive affect” and values above three as “frequent positive affect”.

To *determine self-rated health*, respondents were asked to rate their current state of health on a five-point scale. The given answer alternatives range from “very good” to “very poor”. In this DZA Aktuell, the response categories “very good” and “good” were summarised as “good self-rated health”, and the response categories “average”, “poor” and “very poor” were summarised as “poor self-rated health”.

To measure *cognitive performance*, a digit symbol substitution test (DSST) was used, closely modelled on the DSST commonly used to measure intelligence (Wechsler 1955; Tewes 1994). Respondents were presented with a code table containing the Arabic numerals 1–9, each of which was assigned a simple geometric symbol. They

then had 90 seconds to insert the appropriate symbol into the respective field below with a pencil on a sheet with four rows of digits. The number of digits exceeds the number of entries that can be made in the allotted time. According to common practice from the literature (Schepker et al. 2016; Szcześniak et al. 2021) the continuous variable was dichotomised into good and poor cognitive abilities. Values that were 1.5 standard deviations below the overall mean were defined as showing “rather poor cognitive results”, while values above this cut-off revealed “rather good cognitive results”. As the digit symbol substitution test must be carried out in the presence of the interviewer, it was not used in 2021 due to the COVID-19 pandemic (only telephone interviews took place). Instead, the data from 2017 was analysed here. To make it easier to compare this analysis with the other indicators, 2017 is always included, even if the focus is on the most recent results from 2021.

Findings

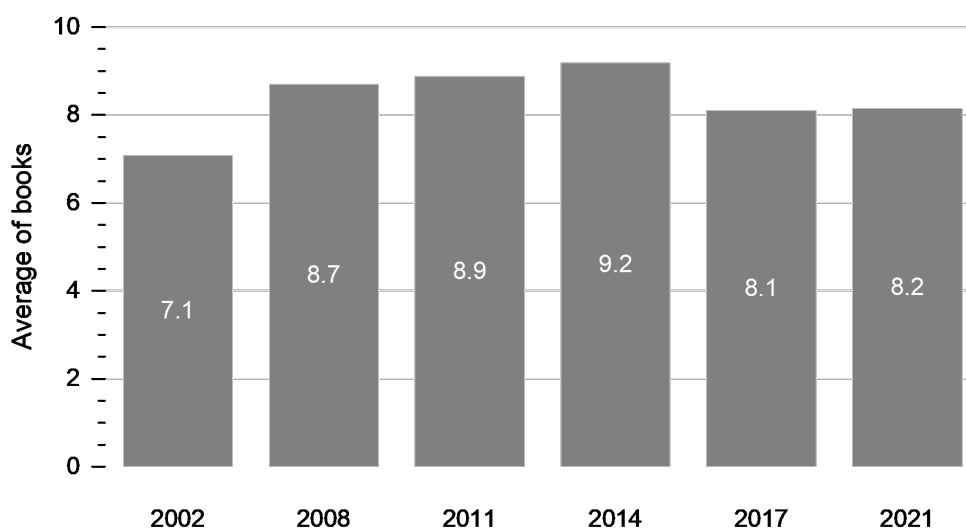
The results of the German Ageing Survey do not provide evidence of a reading crisis. Between 2008 and 2021, the average number of books read annually by 46- to 85-year-olds was between 8.1 and 9.2 (Figure 1). Although the figures for 2017 and 2021 differ significantly from those for 2014, the difference is negligible at an average of one book less per year. Only 2002 differs significantly from later survey years: here, an average of only seven books were read per year. This is in line with the findings of Stiftung Lesen, which recorded fewer daily readers and more never-readers in 2000 than in 2008 (Stiftung Lesen 2009: 34).

It may be assumed that during the COVID-19 pandemic and the associated restrictions on cultural activities (cinema, theatre, concerts, museums), interest was directed

more strongly towards the few cultural activities that remained accessible during lockdowns – such as reading. In many federal states, bookshops were also open even in lockdown periods because they were recognised as systemically relevant (Bundesregierung 2020).

However, this assumption cannot be confirmed by the available results. It is possible that increased home office, home schooling and childcare meant that there was a lack of leisure time available to read after all; or that free time was increasingly spent on digital offerings such as streaming. It is also conceivable that a situation perceived as a crisis may not necessarily be used for reading due to existential concerns standing in the way (see Jahoda, Lazarsfeld, & Zeisel 2020).

Figure 1: Average number of books read in the last 12 months (including non-readers) compared over time



Source: DEAS 2002 (n = 4,115), 2008 (n = 5,479), 2011 (n = 3,702), 2014 (n = 7,443), 2017 (n = 5,241), 2021 (n = 4,169), weighted, rounded figures. 2002 differs significantly from all survey years ($p < 0.05$). 2014 differs significantly from the survey years 2017 and 2021 ($p < 0.05$). The differences between the other survey years are not statistically significant ($p < 0.05$).

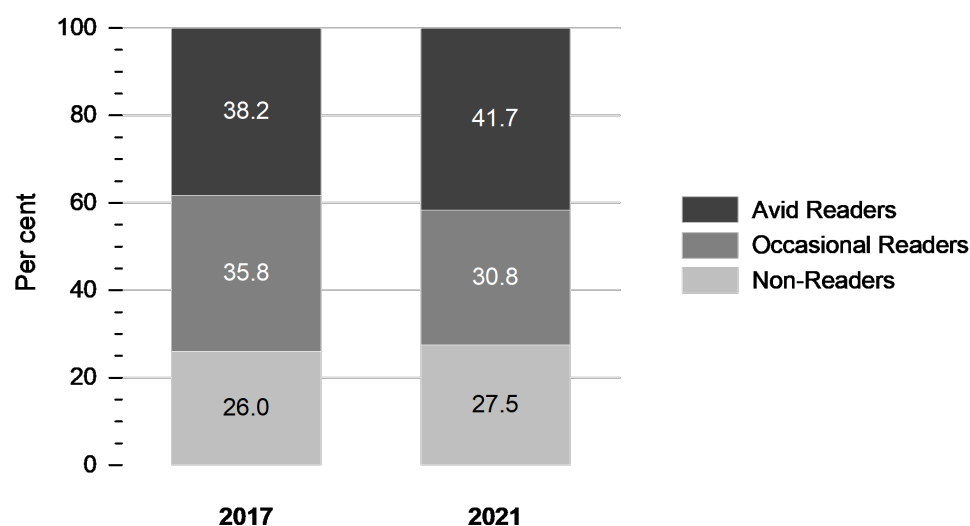
Three comparison groups were designated for further analyses: non-readers, occasional readers (1 to 5 books per year) and avid readers (6 or more books per year). In 2021, over 40 per cent of 46- to 85-year-olds were among the avid readers (Figure 2). Yet, more than a quarter in this age group did not pick up a book once.

Compared to 2017, there are no significant differences between avid readers and non-readers. A significant decline of five percentage points can only be observed in the middle group of occasional readers. Compared to the just under 36 per cent of

respondents in 2017 who said they had read 1 to 5 books, fewer than 31 per cent said so in 2021.

Even though no individual longitudinal analysis was carried out here, it can be assumed that regular readers remain so – at least in the short observation period – and that non-readers stay consistent as well. This aligns with the finding that reading socialisation usually takes place in childhood and adolescence and that a lack of reading socialisation often cannot be compensated for later in life (Wollscheid 2008).

Figure 2: Proportion of non-readers, occasional readers and avid readers in 2017 and 2021 (in per cent)



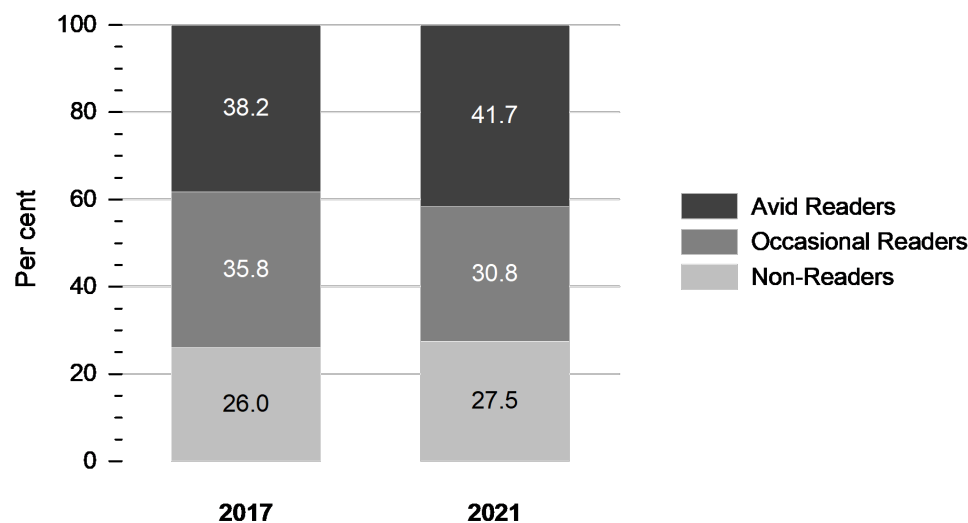
Source: DEAS 2017 (n = 5,241), 2021 (n = 4,169), weighted, rounded figures.

There is a significant difference over the years among occasional readers ($p < 0.05$). There is no significant difference over the years for non-readers and avid readers ($p < 0.05$).

Closer analysis of the results by age group also reveals hardly any significant differences (Figure 3). The only statistically significant gap between avid readers across age groups is in 2017 between 66- to 75-year-olds (just under 42 per cent) and 76- to 85-year-olds (just over 34 per cent).

One explanation for this may be the age-related decline in cognitive abilities or a general deterioration in health. However, this difference could not be statistically verified for the avid readers in these two age groups in 2021.

Figure 3: Proportion of non-readers, occasional readers and avid readers in 2017 and 2021 by age (in per cent)



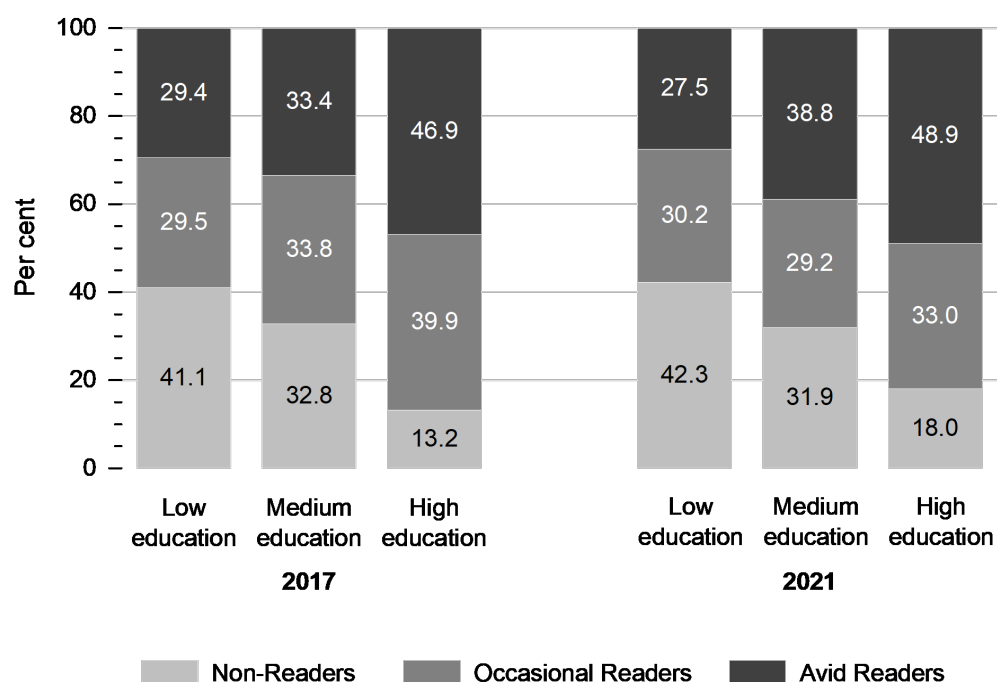
Source: DEAS 2017 (n = 5,241), 2021 (n = 4,169), weighted, rounded figures.

In 2017, the age groups of 66- to 75-year-olds and 76- to 85-year-olds differed significantly in the group of avid readers ($p < 0.05$). All other differences between the age groups are not significant ($p < 0.05$).

Unsurprisingly, the results show that reading a lot is strongly associated with a high level of education. Almost half of highly educated people aged 46 and over read at least 6 books a year in their free time in 2021 (Figure 4). The educational gradient is clear: among people with a medium level of education, the figure was just under 39 per cent; and in the group of people with a low

level of education, at just over 27 per cent, it was only slightly more than one in four. Accordingly, the opposite trend was seen among non-readers: a good 42 per cent of people with a low level of education were non-readers, compared to just 18 per cent of people with a high level of education. Similar patterns can also be seen for 2017.

Figure 4: Proportion of non-readers, occasional readers and avid readers in 2017 and 2021 by education (in per cent)



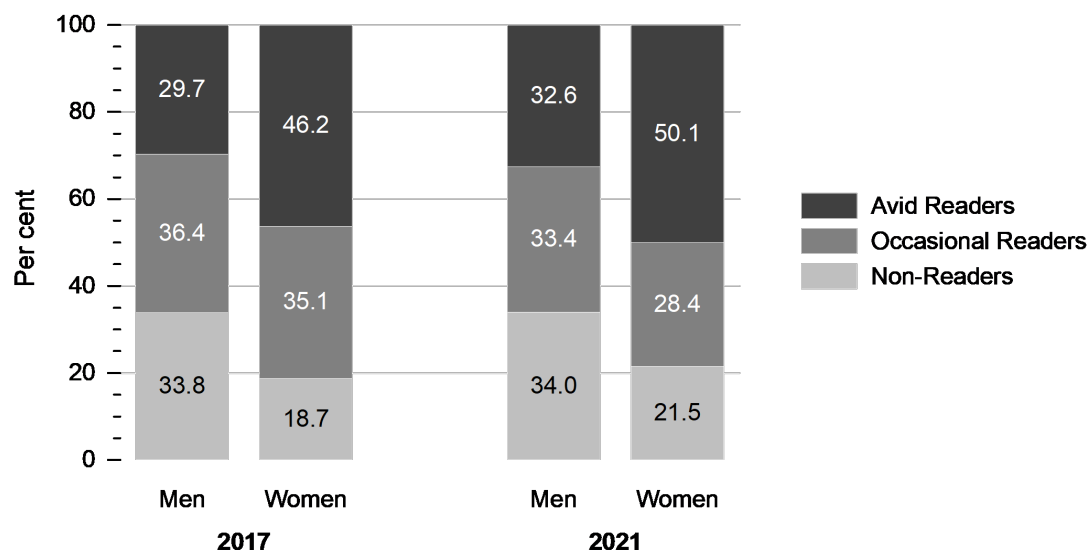
Source: DEAS 2017 (n = 5,241), 2021 (n = 4,168), weighted, rounded figures.

In 2017, people with a low level of education differed significantly from people with a medium and high level of education in all reading groups ($p < 0.05$). In 2021, people with a low level of education differ significantly from people with a medium and high level of education in the groups of non-readers and avid readers ($p < 0.05$).

The data from the German Ageing Survey also shows that half of women aged between 46 and 85 were avid readers in 2021, but only just under a third of men read at least 6 books a year: a difference of 17 percentage points (Figure 5). A gender difference that has hardly changed since 2017: back then, the gap was 16 percentage points (men: just under 30%, women: a good 46 per cent).

The fact that women and men differ in their reading behaviour is nothing new (see Stiftung Lesen 2009; Medienpädagogischer Forschungsverbund Südwest c/o Landesanstalt für Kommunikation (LFK) 2022) and has been, at least in the past, attributed to the fact that girls were encouraged to read more at home than boys (Bonfadelli & Fritz 1993).

Figure 5: Proportion of non-readers, occasional readers and avid readers in 2017 and 2021 by gender (in per cent)



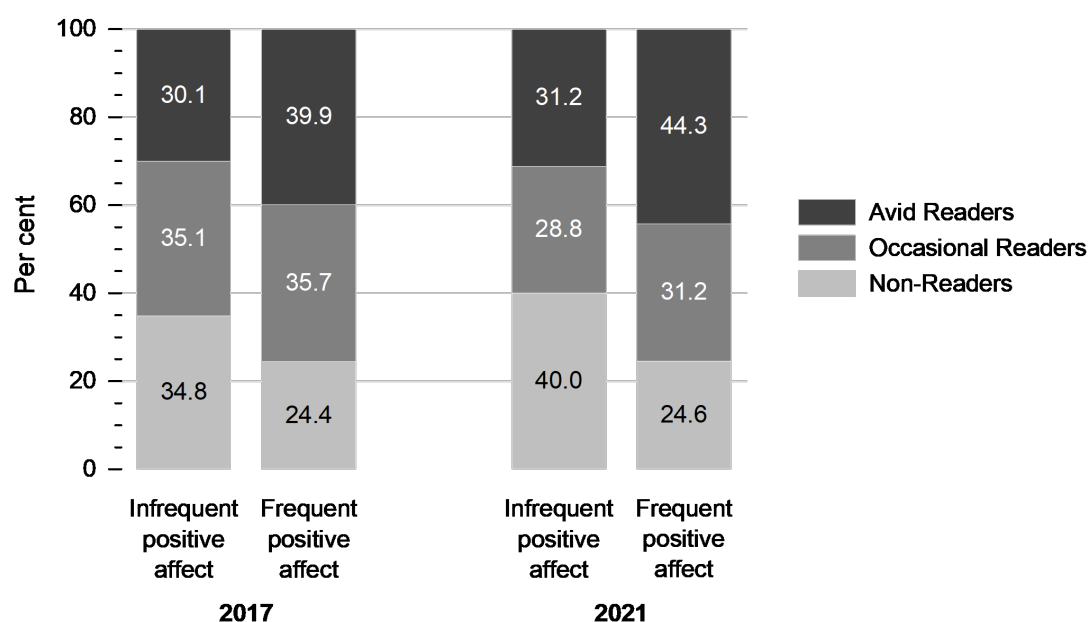
Source: DEAS 2017 (n = 5,241), 2021 (n = 4,169), weighted, rounded figures.

In both years, women and men differ significantly in the groups of non-readers and avid readers ($p < 0.05$).

But is there a connection between reading and well-being? This question can be answered by analysing the so-called positive affect, which reflects one's emotional state. In both 2017 and 2021, a very clear majority of avid readers experienced positive emotions more frequently than non-readers (Figure 6). In 2021, almost 86 per cent of

avid readers were more likely to experience positive emotions, compared to just over 72 per cent of non-readers. The correlation was thus similar to 2017: almost 88 per cent of avid readers frequently experienced positive emotions, but only 79 per cent of non-readers.

Figure 6: Proportion of people with frequent and infrequent positive affect among non-readers, occasional readers and avid readers in 2017 and 2021 (in per cent)



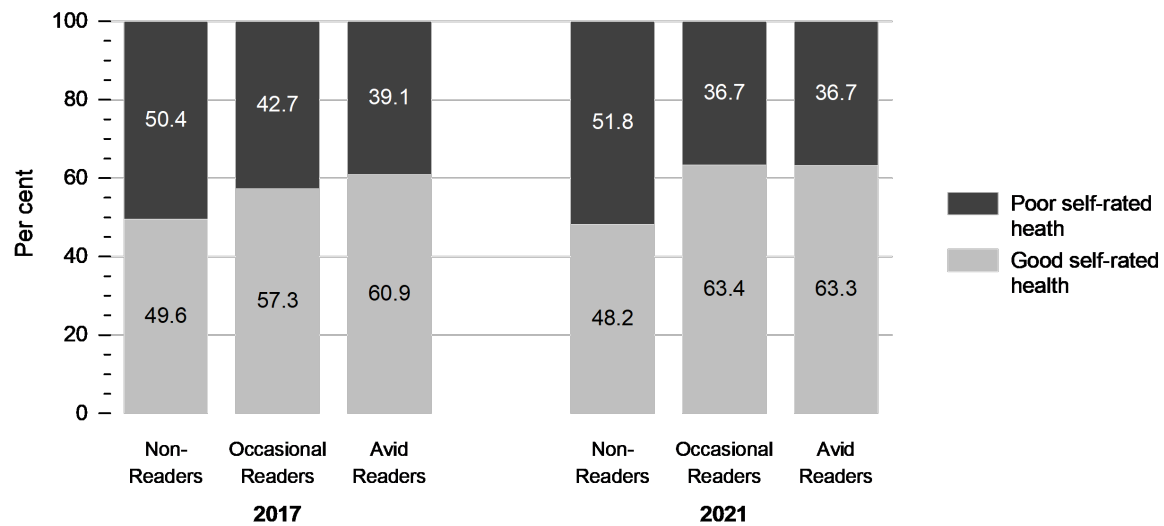
Source: DEAS 2017 (n = 5,223), 2021 (n = 4,141), weighted, rounded figures.

In 2017 and 2021, the non-readers differed significantly from the occasional and avid readers in terms of positive affect ($p < 0.05$).

The results on the connection between reading and self-rated health are similar. In 2021, a good 63 per cent of avid readers reported that they rated their own health as good or very good (Figure 7). In contrast, only just under half of non-readers rated their health as (very) good.

This difference was also observed in 2017: Just under 61 per cent of avid readers, but only just under 50 per cent of non-readers rated their health as good.

Figure 7: Proportion of people with poor and good self-rated health among non-readers, occasional readers and avid readers in 2017 and 2021 (in per cent)



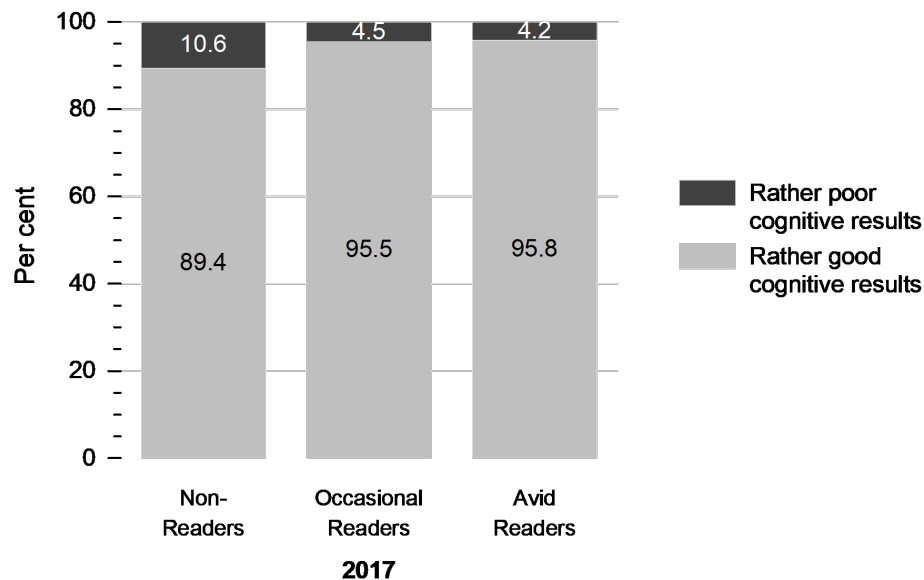
Source: DEAS 2017 (n = 5,240), 2021 (n = 4,167), weighted, rounded figures.

In 2017 and 2021, non-readers differed significantly from the occasional and avid readers in terms of self-rated health ($p < 0.05$).

A connection between reading and cognitive abilities can also be assumed (cf. e.g. Cunningham & Stanovich 2001). The 2017 survey shows a statistically significant correlation between reading volume and results in a cognitive test (this test was not

carried out in 2021 due to the COVID-19 pandemic, see “Data and methods”): Almost 96 per cent of avid readers achieved rather good results, while the figure for non-readers was barely above 89 per cent (Figure 8).

Figure 8: Proportions of rather poor and rather good cognitive results among non-readers, occasional readers and avid readers in 2017 (in per cent)



Source: DEAS 2017 (n = 4,554), weighted, rounded figures.

In 2017 and 2021, the non-readers differed significantly from the occasional and avid readers in the cognitive results ($p < 0.05$).

Discussion and outlook

When we think of measures that make us healthier or happier as we age, the first things that come to mind are things like exercise, giving up alcohol or cigarettes, healthy eating and preventive medical check-ups – measures that primarily affect our bodies.

Yet, it has long been known that other factors, such as social factors, also have an influence on ageing. Loneliness, for example, increases the risk of various diseases (Böger & Huxhold 2018; Luo 2012). Images of age acquired early in life can have an impact on one's later health and even mortality (Wurm 2022).

And maintaining cognitive abilities is also considered an important aspect of successful ageing (Rowe & Kahn 1997).

So, if reading books maintains both cognitive skills and one's empathic connection to the world (see e.g. Bavishi et al. 2016; Wolf 2019), in other words it also harbours a social component, then this form of cultural participation must also be a factor for a fulfilling and healthy life in old age.

This DZA Aktuell shows that, in recent years, people in the second half of life have not been reading less – the number of books read per year since 2008 has hovered around eight to nine. Differentiating non-readers, occasional and avid readers, no significant gaps seem to exist between age groups. However, there are differences according to gender: women are more likely to be avid readers than men. As there are indications that women identify more strongly with textual content and protagonists, i.e. read more empathetically (see e.g. Charlton, Burbaum, & Sutter 2004; Odag 2007: 473), they may benefit more from the presumed positive effects of reading on emotional well-being.

In addition, a high educational status is associated with a greater reading volume. However, it also emerged that one in four people in the group with a low level of

education read regularly, too, and may therefore benefit from the possible positive effects of regular book reading as well.

The results show that reading is associated with positive affect, better self-rated health and sustained cognitive performance. However, the differences in some cases are not very large, and it should also be borne in mind that the direction of effect could not be mapped here. It may well be that people who are doing well are more likely to pick up a book. Furthermore, well-educated people generally have a higher level of health knowledge and often belong to higher income groups – perhaps this is why they feel healthier, happier and are cognitively fitter. Reading books regularly would then be less a step towards ageing well than the result of it.

Nevertheless, these initial results (as well as the research results from other countries (e.g. Bavishi et al. 2016; Chang et al. 2021; Jacobs et al. 2008) suggest a link between book reading and various aspects of high quality of life among people in the second half of life. Future research should further examine the causality of these relationships.

If the findings are confirmed that reading books is indeed beneficial for quality of life in its second half, it would be advisable to better foster and enable reading in this phase of life as well: by maintaining or promoting library services as well as book buses and online services – so that everyone can access books regardless of mobility or income. Accessibility should also be considered: books in large print or audiobooks are helpful for people with visual impairments, as are e-books where font size and contrast can be adjusted by the reader. For the latter, however, improved access to digital offerings and the promotion of digital media skills are necessary, especially for older people, as also addressed in the Eighth Report on Ageing (Bundesministerium für Familie, Senioren, Frauen und Jugend 2020).

Reading mentorships between old and young could also contribute to reading skill promotion and fostering interest in literature among children and young people, and thus simultaneously encourage cross-generational exchange to the benefit of both, as social activity and engagement are also associated with positive effects on well-being (Müller, Ziegelmann, Simonson, Tesch-Römer, & Huxhold 2014; Morrow-Howell 2009; Wilson 2012). There are many opportunities to get involved: from reading aloud to nursery children, to helping schoolchildren learn to read, to conversely reading aloud in care facilities for the elderly (e.g. Stiftung Lesen 2023; Lesen in Deutschland 2023). The role of the numerous reading circles/book clubs in Germany (30,000 are mentioned, see Deutschlandfunk 2022) should also be acknowledged, as they promote social integration in addition to exchange based on

sharing a love of literature. As is common in the Anglo-American region, these could be supported, for example, by libraries offering space for meetings or materials/tips from publishers (Pleimling 2013).

Care facilities, as mentioned, have recorded especially positive experiences with so-called bibliotherapy, e.g. reading groups for the elderly (Bolitho 2011). This often overlooked area of social integration in old age and healthcare promotion could be given greater support to the benefit of elderly well-being.

So there are many reasons to stimulate reading among older people and to research its effects – even though it should not be forgotten that reading in general is an important building block of lifelong learning and also, quite without purpose, a fulfilling and enjoyable leisure activity.

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