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The NRW80+ study: conceptual background and study groups

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Abstract

Background: The study “Quality of life and well-being of the very old in North Rhine-Westphalia NRW80+” aims at giving a representative picture of the quality of life (QoL) in this population. Conceptually, QoL research has rarely considered the values of older individuals themselves and societal values, and their relevance for successful life conduct. Empirically, comparisons of different age groups over the age of 80 years are rare and hampered by quickly decreasing numbers of individuals in oldest age groups in the population of very old individuals.

Study design and theoretical framework: This paper describes the population of the NRW80+ study and different age groups of very old individuals with respect to biographical background. Furthermore, using the challenges and potentials model of QoL in very old age (CHAPO), key aspects of QoL in late life are discussed and the importance of normative stipulations of what constitutes a successful life conduct are highlighted. In the NRW80+ study older age groups (i.e., 85–89 years, 90+ years) were deliberately overrepresented in the survey sample to enable robust cross-group comparison. Individuals willing to participate in the study but unable to participate in the interview themselves for health reasons were included by means of proxy interviews.

The total sample included 1863 individuals and 176 individuals were represented by proxy interviews. Pronounced differences were observed between age groups 80–84 years (born 1933–1937, $N = 1012$), 85–89 years (born 1928–1932, $N = 573$), and 90 years or older (*born before 1927, $N = 278$) with respect to education, employment and the timing of major life events (e.g., childbirth).

Conclusion: Different life courses and resulting living conditions should be considered when discussing QoL disparities in very old age.

Keywords

Representative survey · Very old age · Quality of life · Cohort · Age groups

The goal of the study “Quality of Life and Well-Being of the Very Old in North Rhine-Westphalia NRW80+” is to provide a representative picture of quality of life (QoL) in the population of those 80 years or older [40]. This paper serves as an introduction to the thematic focus of this special issue, providing a basic understanding of the NRW80+ study and sample. All papers in this issue are based upon NRW80+ data. The aim of this introduction is twofold. First, a brief characterization of the tar-

geted population is offered with respect to biographical background, historical context, and the age structure of today's very old individuals in NRW. Second, key aspects of the “Challenges and Potentials Model of Quality of Life in Very Old Age (CHAPO)” are discussed and the importance of stipulations of what constitutes the good life or successful life conduct are highlighted.



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The population of very old individuals today

There is no single agreed upon definition of “very old age”. In the NRW80+ study, the definition of very old age as a chronological age of 80 years or older has been chosen primarily for pragmatic reasons, as it is often the case in population-based surveys [17, 27, 40]. It has been shown that from about 80 years onwards, the probability of a variety of age-associated changes such as health impairments increases. This has led to the well-known distinction between resource-rich third age and resource-poor fourth age [1, 2]. Due to achievements in healthcare, social life, and technical advances, some scholars argue that today, people in their 60s or 70s no longer correspond to traditional understandings of old age. Rather, the fourth age appears to be the real age that bears strong resemblance to classical (negative) views on old age. Nevertheless, aging and old age can also be associated with positive aspects such as rich experience, accumulated knowledge, and serenity [25, 33]. For a comparative overview of perspectives on the third and fourth age and risks of such a distinction, see Wahl and Ehni [41].

Today, life beyond 80 years of age may span one or even two more decades for many individuals, making the very old a group that comprises a great number of diverse birth cohorts. It is paramount to understand differences in early socialization, education, and life experiences as potential determinants of QoL outcomes in very old age; however, a comparison of age groups within very old age is hampered by quickly decreasing numbers of very old and oldest individuals in the population and a growing disproportionality of men and women particularly in the oldest age groups. As a consequence, many empirical studies offer limited possibilities to differentiate age groups within very old age, even if they do not specify a maximum age for study participation [5]. In NRW80+, three groups of very old people were considered: 80–84 years (born 1933–1937), 85–89 years (born 1928–1932), and 90 years or older (born before 1927).

Reference studies in the field of aging research (e.g. BASE, SHARE, German Age-

ing Study) have shown that the group of older people is very heterogeneous with respect to, for example, functional status [22] or social engagement [20]. Such interindividual differences may be due to differences in life courses. It has been shown that earlier life experiences influence not only health but also QoL in later life [3, 19, 30]. People’s life courses are influenced by societal factors such as political decisions and historical circumstances happening at a certain time and experienced at different times in their life course.

For today’s oldest old, one important historical event was the Second World War (WWII) and its consequences. All NRW80+ age groups were socialized during times of National Socialism and war; however, participants aged 80–84 years and 85–89 years today were often young enough to be part of the Nazi evacuation scheme and may have participated as soldiers only towards the end of WWII. Older age groups were likely to have been more actively involved in war-related combat or consequences of the war in the home country. The post-war period was characterized by overcoming the traumas from the war period. The younger age groups may have been more influenced by the economic upswing and the worldviews of the Allied Forces.

In general, the older age groups (85+ years) attained fewer years of education due to the war. A large percentage of this age group left school early, attaining lower secondary education at best, whereas the individuals of the younger age group usually reached higher educational qualifications [24]. Consequently, men born around 1930 had difficulties finding apprentice positions or take part in vocational training, often ending up in jobs without formal qualifications [4]. Moreover, the majority of women born around 1930 received no vocational training [21]. Beginning with the post-war period, the average age of marriage decreased until about 1970 and afterwards increased [11], and the average age of women when bearing their first child increased in younger birth cohorts [16]. There was a peak in the number of children born from women who were born in 1933 with a decreasing trend across later birth cohorts (i.e., women born before 1966) [10]. Due to the end of WWII,

many people immigrated to Germany as they had to flee from other, mainly Eastern European countries [28].

For comparison of age groups, one means for making sure enough individuals of a specific age are available for analysis in survey samples is to oversample rare individuals (e.g., older men); however, the small population number of individuals in oldest age effectively limits the degree of disproportionality that can be achieved in the actual sample, especially when the total sample size is large.

Because sample size and selectivity precludes a fuller picture of the heterogeneity of conditions that exists in this age group, current studies offer only limited potential to discuss normative aspects of QoL in the oldest old. In comparison to other ageing studies in Germany, NRW80+ is unique in that it includes individuals in care facilities and uses proxy interviews to represent those unable to answer questions themselves (e.g., due to cognitive impairment).

The NRW80+ sample

NRW is the most populous state in Germany, counting 17.9 million inhabitants, including 20% old individuals. Furthermore, NRW has a history of immigrants, making its population heterogeneous. The NRW80+ study was designed for robust inference about age group and gender differences and built upon the results of a comprehensive feasibility study [39]. A priori power analysis indicated that a sample size of $N = 1548$ would enable detection of small interaction effects ($F = 0.1$) between design factors (age group \times gender) with high power ($1 - \beta = 0.95$) at a conventional alpha level of 0.05. The population of the study included all people who had reached 80 years of age by 31 July 2017 and whose registered primary residence was in NRW. This includes individuals living in private and non-private settings (e.g., long-term care). The sampling followed a two-step procedure: First, a sample of 94 communities was drawn from the entirety of all communities in NRW. In a second step, the registration offices of the selected communities provided a simple random sample of inhabitants, amounting to 48,137 addresses from the target population. The group of potential study

Table 1 Sample composition with respect to age and gender distribution

Design group	Register sample (N = 48,137)	Gross survey sample (N = 8040)	Response rate ^a	Net survey sample (N = 1863)	Effective sample size
	%	%	%	N (%)	% (N)
<i>Male</i>					
80–84 years (M8084)	22.2	17.5	27.4	384 (20.6)	87.2 (335)
85–89 years (M8589)	10.7	14.7	25.9	299 (16.0)	84.9 (254)
90 years or older (M90+)	3.6	12.5	24.4	244 (13.1)	84.6 (206)
<i>Female</i>					
80–84 years (F8084)	32.6	20.0	21.6	344 (18.5)	88.3 (304)
85–89 years (F8589)	19.5	18.7	21.9	326 (17.5)	85.4 (278)
90 years or older (F90+)	11.4	16.7	20.2	266 (14.3)	85.2 (227)
Unweighted data					
^a percentage of realized interviews from all eligible cases					

Table 2 Basic sample characteristics and estimated numbers in the NRWold age population

	NRW80+ wave 1 sample (N = 1863)	Population by 31 December 2016 (N = 1,077,296)
	N %	N
<i>Gender (male)</i>	676 36.3	390,702
Female	1187 63.7	686,594
<i>Age group (80–84 years)</i>	1012 54.3	585,050
85–89 years	573 30.7	331,145
90 years or older	278 15.0	161,102
<i>Living situation (private)</i>	1604 86.1	927,713
Living in institution	259 13.9	149,583
<i>Informant (self-report)</i>	1698 91.2	982,011
Proxy report	165 8.8	95,285
<i>Levels of care demand (none)</i>	1210 66.8	699,907
Level 1	58 3.2	33,304
Level 2	214 11.8	123,767
Level 3	193 10.6	111,500
Level 4	95 5.3	55,052
Level 5	43 2.4	24,849
<i>Education (ISCED, low)</i>	534 30.0	308,969
Medium (upper/post-secondary)	914 51.3	528,280
High (tertiary)	332 18.6	191,701
Weighted data		
ISCED International Standard Classification of Education		

participants (gross sample) was defined to comprise N = 8040 individuals based on an a priori power analysis and an expected response rate of 20–25%. Individuals from older age groups (85–89 years, 90+ years) and men were systematically oversampled, i.e. represented more frequently within the gross sample than would be expected in a simple random sample (Table 1); however, equal sample size (N = 1340 or 16.7%) in each of the six design groups (i.e., age group × gender) was not feasible due

to the low number of men aged 90 years or older (M90+) in the population.

Computer-assisted personal interviews (CAPI) were conducted by experienced and trained interviewers of Kantar (previously TNS Infratest, Munich, Germany). A total of 1863 interviews were realized, assessing—besides QoL resources and outcomes—central events in the life course. Response rates were lower for older age groups and lower for women compared to men; however, a minimum of 244 ob-

servations could be realized for all design groups, allowing for robust subgroup analysis. Design weights were computed for all individuals selected into the gross sample to correct for selection of communities and oversampling of men and older age groups. Finally, calibration weightings were computed for participants in an iterative raking process based on the known demographic structure of the very old population with respect to age, gender, marital status, household size, institutionalization, and regional characteristics (for details see [9]). Even after applying weighting to correct for the disproportional sampling design and study nonresponse, effective sample size in all groups remained large. For example, the precision of population estimates in the strongly oversampled M90+ group in the NRW80+ sample is the same as the precision from a simple random sample of 206 individuals in this population group.

Respondents were on average 86.5 ± 4.5 years old (range 80–102 years) at the time of the interview. Table 2 shows that in the overall population of very old adults, 13.9% live in an institution. The number of very old individuals for which proxy interviews could be conducted was estimated at 8.8% in the population of the very old. Overall, only a minority of 33.2% of those 80 years or older show a formal need for care. Approximately half of the very old population showed medium levels of education, while high levels of formal education (i.e., bachelor's degree and equivalent professional level or higher) were found for only one out of five persons in this age segment.

Substantial age group differences were observed with respect to educational background (ISCED; [14]), employment history, socioeconomic status (International Socio-Economic Index of Occupational Status [ISEI]; [15]), marital status, institutionalization, birth of first child, and age at immigration (Table 3 and Fig. 1). The risk of institutionalization increased across age groups. Oldest individuals attained lower educational levels (i.e., up to lower secondary) in comparison to those in younger groups; however, most heterogeneity in educational level was attributable to gender. In the youngest age group, the share of women never

Table 3 Age group background characteristics and response behavior							
% or M [95%CI]	80–84 years (*1933–1937)		85–89 years (*1928–1932)		90+ years (*–1927)		Test ^a
	Men	Women	Men	Women	Men	Women	
<i>Education</i> (ISCED, low)	9.1	33.4	9.9	44.5	9.6	41.8	Age: $p = 0.041$, Sex: $p < 0.001$, Age*Sex ^c : $p = 0.172$
Medium	56.1	55.9	53.0	44.2	61.8	50.8	
High	34.8	10.7	37.1	11.3	28.6	7.4	
<i>Employment</i> (past employment)	99.8	92.2	99.8	85.5	100	87.3	Age: $p < 0.01$, Sex: $p < 0.001$, Age*Sex: $p < 0.001$
Never employed	–	7.8	–	14.0	–	12.4	
Still employed	0.2	–	0.2	0.5	–	0.3	
<i>Socioeconomic status</i> (ISEI)	45.9 (43.6–48.2)	37.7 (35.5–39.9)	47.1 (43.9–50.2)	36.0 (33.5–38.4)	49.4 (46.0–52.9)	39.6 (37.0–42.1)	Age: $p = 0.049$, Sex: $p < 0.001$, Age*Sex: $p = 0.466$
<i>Marital status</i> (married)	71.9	32.8	59.3	12.2	46.7	5.4	Age: $p < 0.001$, Sex: $p < 0.001$, Age*Sex: $p < 0.001$
Married, but separated	1.7	1.3	0.7	0.2	0.4	–	
Divorced	3.9	6.0	3.1	3.6	0.7	3.0	
Widowed	18.9	55.4	35.9	77.8	48.8	85.7	
Single	3.7	4.5	1.0	6.2	3.5	6.0	
<i>Living situation</i> (private)	95.9	92.1	88.3	80.4	82.6	59.5	Age: $p < 0.001$, Sex: $p < 0.001$, Age*Sex: $p = 0.265$
Living in institution	4.1	7.9	11.7	19.6	17.4	40.5	
<i>Migration status</i> (immigrated)	25.4	22.8	21.1	22.8	22.8	26.5	Age: $p = 0.527$, Sex: $p = 0.646$, Age*Sex: $p = 0.410$
<i>Age at birth of first child</i>	28	26	29	26	31	28	Age: $p < 0.001$, Sex: $p < 0.001$, Age*Sex: $p = 0.683$
<i>Age at immigration</i>	20	19	23	25	28	29	Age: $p < 0.001$, Sex: $p = 0.830$, Age*Sex: $p = 0.618$
<i>Age at end of employment</i>	61	44	62	46	61	47	Age: $p < 0.114$, Sex: $p < 0.001$, Age*Sex: $p = 0.455$
<i>Response behavior</i> ^b							
Don't know (%)	1.2 [0.9–1.5]	1.5 [1.2–1.9]	1.8 [1.3–2.2]	2.5 [2.0–3.0]	2.4 [1.9–2.9]	3.5 [2.8–4.2]	Age: $p < 0.001$, Sex: $p < 0.001$, Age*Sex: $p = 0.172$
Refuse to answer (%)	1.9 [1.3–2.4]	1.6 [1.0–2.1]	2.1 [1.3–2.8]	1.9 [1.4–2.4]	2.2 [1.5–2.8]	2.4 [1.6–3.1]	Age: $p = 0.071$, Sex: $p = 0.631$, Age*Sex: $p = 0.708$

Weighted data
^aTests for main and interaction effects used Taylor linearization to account for the multistage sampling and linear, logistic, or generalized logistic modelling for metric, ordinal, or nominal dependent variables respectively
^bPercentage of refusal to answer or “don't know” responses of all questions asked at the level of the individual. Hence, differences in the number of questions asked at the level of the individual due to filtering are accounted for in the average score given in the table
^cInteraction between age and sex

having been employed was lower. Within the youngest age group and in women, divorce was more common. Furthermore, in the oldest age groups, more individuals were widowed. Of those having children, the oldest age groups (both men and women) were older when having their first child than the two youngest age groups (see Fig. 1). Of those who migrated to Germany, the youngest age

groups were younger at arrival in Germany (19 and 20 years for women and men, respectively) with increasing age in those between 84 and 89 years and 90+ years. More than half of the NRW80+ participants who immigrated did so shortly after the Second World War. Whereas women were on average younger when ending employment than men, no substantial

age group differences were observed in both men and women.

Item nonresponse measured at the level of the individual was generally low in this study. On average, less than 4% of all information asked from a respondent was lacking due to refusal to answer or “don't know” responses. Nevertheless, while the share of person-level refusals did not increase across age groups, “don't know” an-

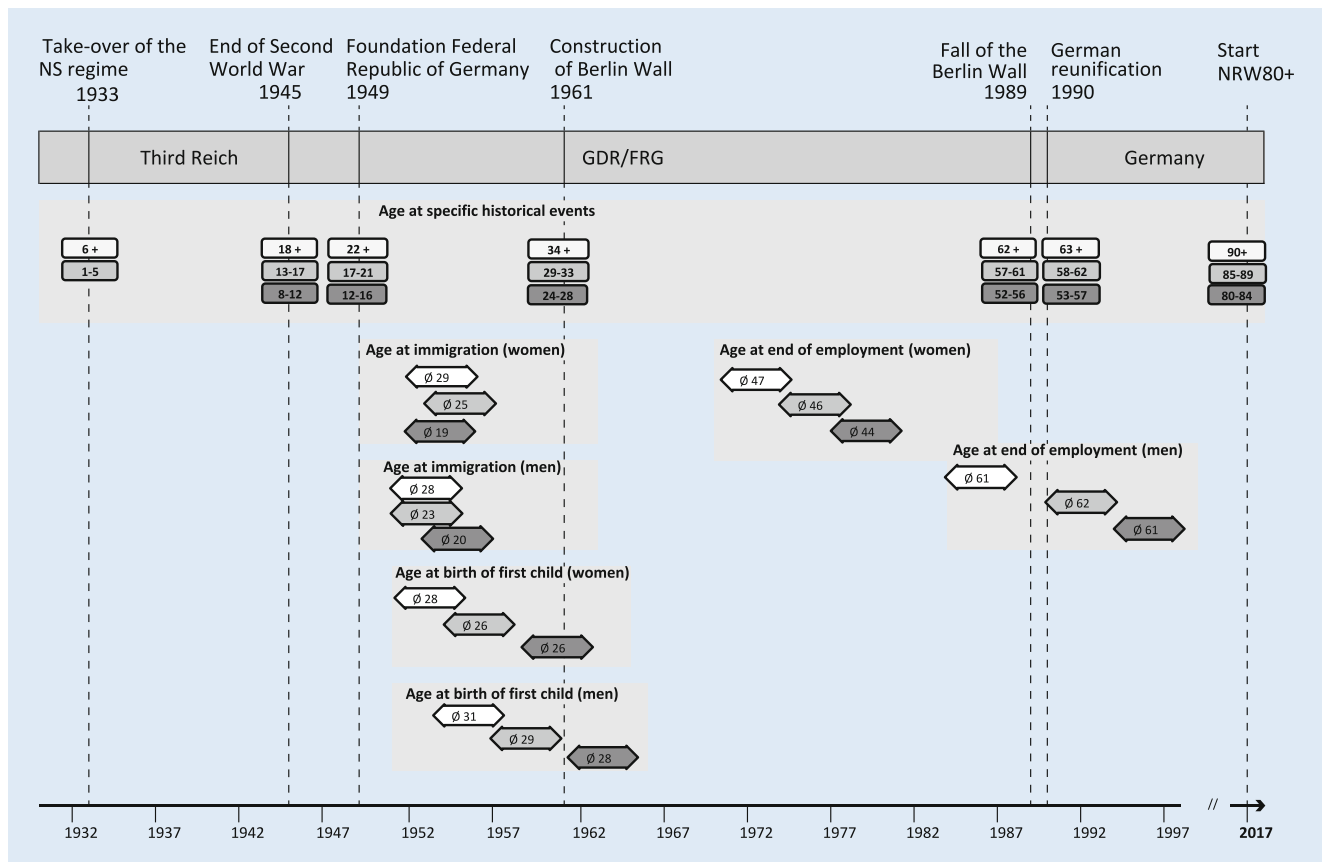


Fig. 1 ▲ Timing of historical events in the life course of cohorts of the very old and differences with respect to age at key biological events. *FRG* Federal Republic of Germany, *GDR* German Democratic Republic

swers did. Part of this effect was due to the increasing share of interviews with proxy informants in older age groups; however, additional analysis showed that age had an independent (albeit small) effect on item nonresponse over and above the effect of proxy informant and cognitive status (standardized beta = 0.14, 0.35 and 0.34, respectively). Hence, item nonresponse in this study of the very old was rare and multifactorial. Besides, the prevalence of cognitive impairment estimated based on the NRW80+ sample was comparable to prior epidemiological findings [13]. Two out of three respondents showed age-adapted cognitive functioning according to norm data and a similar proportion of individuals were screened or rated as mild cognitive impaired (MCI) or early dementia.

A theoretical framework of QoL in very old age

Even though a plethora of QoL studies exist on the individual, on a group or country level, and in many specific subpopulations [26], the QoL of very old individuals has rarely been examined and there are few QoL models focusing particularly on very old individuals [18]; however, existing studies [6, 7] suggest that in older people—compared to younger age groups—QoL is determined by different aspects. For example, meaningful, eudaimonic aspects seem to be important in older adults [12]. A detailed investigation of different determinants (e.g., personal, environmental, or their interaction) of very old individuals may help to understand unexpected results, such as the well-being paradox in old age. For example, Schilling [34] found that the well-being paradox in old age (i.e., seemingly stable levels of well-being with decreasing levels of resources [36]) results from a change

in health resources as well as differences between cohorts with regard to life satisfaction. In addition, it may be important to identify cohort-specific determinants of QoL in very old age, as early socialization or differences in the timing of major life events (e.g., education, childbearing, retirement) have been found to impact QoL at older ages (e.g. [23, 30]).

With respect to a broad understanding of QoL in very old age, Wagner et al. [40] proposed a framework to integrate major streams of research on subjective aspects of psychological well-being (e.g., life satisfaction) as well as the scientific investigation of the (societal) basis of economic welfare (e.g., education or income). The “Challenges and Potentials Model of Quality of Life in Very Old Age” (CHAPO; [40], see ■ Fig. 2) was based on Veenhoven’s model [38] adding values residing within an individual and/or within the environment (e.g. societal values) as QoL resources. Individual and perceived societal values are assessed in the form of inter-

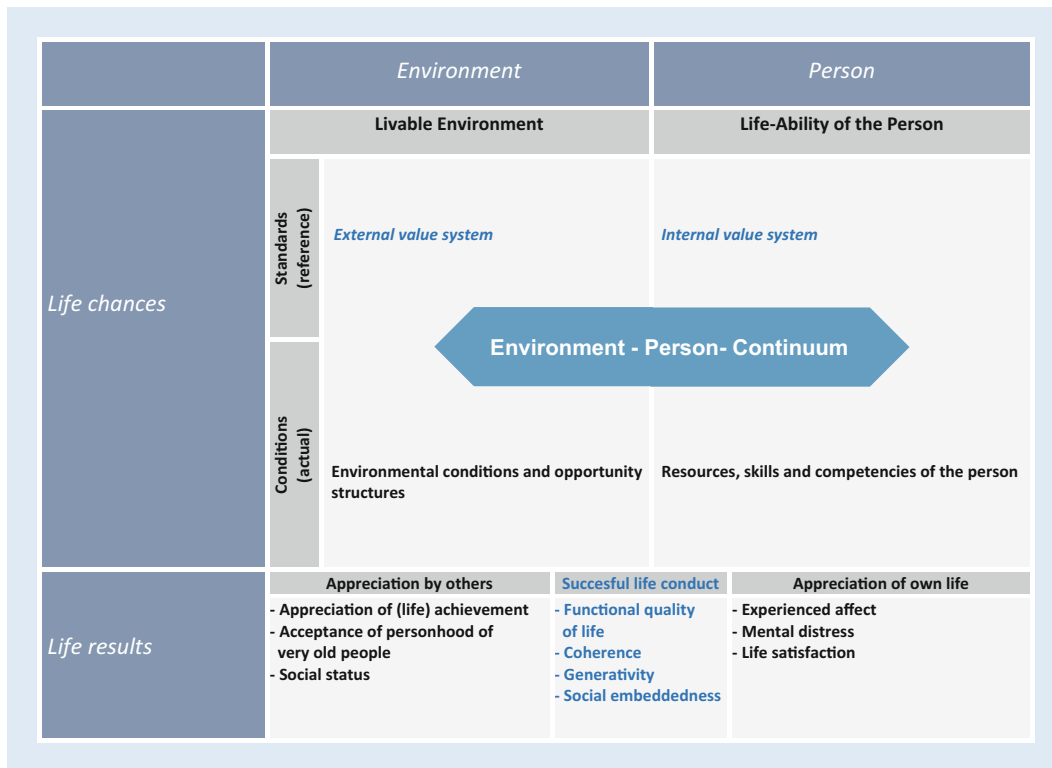


Fig. 2 ◀ Challenges and Potentials Model of Quality of Life in Very Old Age (CHAPO, 40)

view questions, whereas a separate qualitative study evaluated the societal perspective based on stakeholder interviews. The CHAPO was developed as a conceptual framework to operationalize resources and outcomes that are central to the interdisciplinary discussion of QoL in very old age. Given the heterogeneity resulting from vastly distinct life courses of today's very old population, individual values may be idiosyncratic or not congruent with the values of others, younger generations, or today's society, creating a tension between societal groups with respect to the definition of QoL and successful aging.

Furthermore, CHAPO conceptually adds to existing frameworks of QoL in that it explicitly acknowledges the fact that successful life conduct—as a systemic QoL outcome—depends both on resources and values of the older individual as well as on roles and appreciation of late life by society. It allows for descriptive, evaluative, and normative perspectives on QoL in very old age (for a detailed description see [29]). Whereas other QoL models postulate specific mechanisms that promote or prevent QoL, CHAPO—at first sight—distinguishes QoL resources as potential predictors for QoL outcomes;

however, it should primarily be understood as a generic measurement model, serving as a basis to categorize indicators as life chances or life results and distinguishing personal from environmental indicators. Nevertheless, the operationalization of NRW80+ built on previous empirical evidence to include indicators particularly relevant for this age segment. With regard to life chances, indicators in NRW80+ include individual values (see [32] in this issue) or social relations (see [35] in this issue) for the person and environment level, respectively. Life results included indicators such as life satisfaction (see [8] in this issue). CHAPO adds to this the notion of successful life conduct as a systemic concept integrating the idea of person-environment-fit and mechanisms to retain identity, autonomy, and participation in light of compromised physical and mental capacity that characterize fourth age [42–44]. Here, fit refers to a specific positive constellation of resources and demands that foster functionality, independence, or personal growth. Successful aging [37] is defined by an autonomous, generative, active, or productive behavior by using respective educational, social,

infrastructural, technical, or economic resources.

Indicators and determinants of QoL are assumed to be different even across age groups within very old age for a number of reasons. First, very old age today is predominantly female and gender differences for QoL predictors and indicators have to be considered [31]. Second, individuals in their beginning 80s may not (yet) experience a drastic decrease in individual resources (e.g., health, social network) and consequently depend less on environmental resources for QoL; however, the relative contribution of environmental resources for autonomy and QoL may be greater in the oldest old.

Discussion

The NRW80+ study allows making robust statements about age group differences within the population segment of very old adults and strengthens the state of research on quality of life of the oldest old in Germany. The sampling strategy was successful in guaranteeing a high level of precision of population estimates, particularly in the rare and hard to reach group of men aged 90 years or older and sufficient

power to test the small to moderate effects expected in social-behavioral aging research.

Age groups within very old age differed substantially with respect to health status, education, past employment, socioeconomic and marital status, resulting in very diverse conditions for and circumstances of realizing successful life conduct.

Results showed differences in the timing of major life events across different age groups within very-old age. The particular age at which significant life transitions (e.g., childbearing) were experienced may influence subsequent biographies and QoL in very old age. For example, immigration at different ages may have consequences for the integration into a new community and therefore may impact QoL; however, several limitations of the current data are noteworthy. Firstly, operationalization of QoL focused on current status and offered only a limited window to study biographical antecedents. Secondly, with cross-sectional data, disentangling age or cohort effects was severely limited. Finally, individuals who survived up to a very old and oldest age can be expected to represent a specific subgroup of the respective birth cohorts. Finally, the face of very old age is changing quickly. The share of very old men, for example, is expected to increase substantially across the next decades.

Conclusion

The NRW80+ study offers a unique possibility to investigate QoL in a representative sample of very old adults from the most populous state in Germany. Whereas the share of older people in the German population increases, representative studies about QoL of this age group remain rare.

The NRW80+ study meets a number of conceptual and methodological challenges of conducting a survey on QoL in the very old population. The CHAPO model considers eudaimonic concepts of QoL as well as concepts integrating personal and environmental aspects especially relevant in old age. A specific strength of this study is the possibility of distinguishing age groups of privately and nonprivately dwelling individuals within very old age, whose differences in socialization, education, and life experiences should exert pro-

found impact on late life QoL outcomes. Hence, the NRW80+ study identifies needs and determinants upon which policy recommendations can be made to create conditions in which individuals may realize and retain successful life conduct throughout late life.

Practical implications

- A scientific use file of the NRW80+ wave 1 data is available at the GESIS data repository (<https://doi.org/10.4232/1.13527>).
- A second wave of the NRW80+ study including more than 900 interviews of wave 1 participants and more than 900 additional initial interviews in a new random sample of individuals 80+ was completed in March 2021. Data will be made available at the GESIS data repository.
- The NRW80+ study protocol was adopted for the Bundesministerium für Familie, Senioren, Frauen und Jugend (BMFSFJ)-funded national study on the oldest old D80+ “Hohes Alter in Deutschland” conducted in cooperation with the German Centre of Gerontology (DZA) in Berlin.

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Declarations

Conflict of interest. S. Hansen, R. Kaspar, M. Wagner, C. Wooten and S. Zank declare that they have no competing interests.

This study was carried out in accordance with the ethical standards of the ethics committee of the Medical Faculty of the University of Cologne and with the Helsinki Declaration of 1975 (in its most recently amended version). Informed consent was obtained from all participants included in the study.

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References

1. Baltes PB, Baltes MM (1990) Psychological perspectives on successful aging: the model of selective optimization with compensation. In: Baltes PB, Baltes MM (eds) *Successful aging: Perspectives from the behavioral sciences*, pp 1–34
2. Baltes PB, Smith J (2003) New frontiers in the future of aging. From successful aging of the young old to the dilemmas of the fourth age. *Gerontology* 49:123–135. <https://doi.org/10.1159/000067946>
3. Blane D, Higgs P, Hyde M et al (2004) Life course influences on quality of life in early old age. *Soc Sci Med* 58:2171–2179. <https://doi.org/10.1016/j.socscimed.2003.08.028>
4. Blossfeld H-P (1989) Kohortendifferenzierung und Karriereprozeß. Eine Längsschnittstudie über die Veränderung der Bildungs- und Berufschancen im Lebenslauf. Campus, Frankfurt am Main
5. Börsch-Supan A, Alcer KH (eds) (2005) *The survey of health, aging, and retirement in Europe (SHARE)*. MEA, Mannheim
6. Bowling A (1995) The most important things in life. Comparisons between older and younger population age groups by gender. Results from a national survey of the public's judgements. *Int J Health Sci* 6:169–176
7. Bowling A (1995) What things are important in people's lives? A survey of the public's judgements to inform scales of health related quality of life. *Soc Sci Med* 41:1447–1462. [https://doi.org/10.1016/0277-9536\(95\)00113-L](https://doi.org/10.1016/0277-9536(95)00113-L)
8. Brijoux T, Wooten C, Zank S (2021) Multimorbidity in old age and its impact on life results. *Z Gerontol Geriatr*. <https://doi.org/10.1007/s00391-021-01920-9>
9. Brix J, Steinacker G, Stadler M et al (2018) NRW80+ Methodenbericht. Kantar Public, München
10. Bujard M, Brehm U, Lück D et al (2019) *Kinderreiche Familien in Deutschland – Auslaufmodell oder Lebensentwurf für die Zukunft?* Wiesbaden

11. Bundesamt für Familie, Senioren, Frauen und Jugend (2003) Die Familie im Spiegel der amtlichen Statistik. Lebensformen, Familienstrukturen, wirtschaftliche Situation der Familien und familiendemographische Entwicklung in Deutschland. Bundesamt für Familie, Senioren, Frauen und Jugend, Berlin
12. Cresswell-Smith J, Amadio F, Donisi V et al (2019) Determinants of multidimensional mental well-being in the oldest old: a rapid review. *Soc Psychiatry Psychiatr Epidemiol* 54:135–144. <https://doi.org/10.1007/s00127-018-1633-8>
13. Doblhammer G, Schulz A, Steinberg J et al (2012) Demografie der Demenz. Huber, Bern
14. Engstler H, Hameister N (2019) Deutscher Alterssurvey (DEAS): Kurzbeschreibung des Datensatzes SUFDEAS 2017, Version 1.0
15. Ganzeboom HBG, Treiman DJ (1996) Internationally comparable measures of occupational status for the 1988 International Standard Classification of Occupations. *Soc Sci Res* 25:201–239
16. Grundmann M (1992) Familienstruktur und Lebensverlauf. Historische und gesellschaftliche Bedingungen individueller Entwicklung. Campus, Frankfurt am Main, New York.
17. Höpflinger F (2014) Langlebigkeit und Hochaltrigkeit. Gesellschaftliche und individuelle Dimensionen. <http://www.hoepflinger.com/fhtop/ViertesLebensalter.pdf>. Accessed 1 Aug 2017
18. Jopp DS, Boerner K, Ribeiro O et al (2016) Life at Age 100: An International Research Agenda for Centenarian Studies. *J Aging Soc Policy* 28:133–147. <https://doi.org/10.1080/08959420.2016.1161693>
19. Kendig H, Loh V, O'Loughlin K et al (2016) Pathways to well-being in later life: socioeconomic and health determinants across the life course of Australian baby boomers. *Population Ageing* 9:49–67. <https://doi.org/10.1007/s12062-015-9132-0>
20. Klaus D, Vogel C (2021) *Soz Fortschr* 70(2):53–74. <https://doi.org/10.3790/sfo.70.2.53>
21. Konietzka D (2013) Ausbildung und Beruf. Die Geburtsjahrgänge 1919–1961 auf dem Weg von der Schule in das Erwerbsleben. Springer, Berlin Heidelberg
22. Lindenberger U, Baltes PB (1997) Intellectual functioning in old and very old age: cross-sectional results from the Berlin Aging Study. *Psychol Aging* 12:410–432. <https://doi.org/10.1037/0882-7974.12.3.410>
23. Luo Y, Waite LJ (2005) The impact of childhood and adult SES on physical, mental, and cognitive well-being in later life. *Journals Gerontol Ser B: Psychol Sci Soc Sci* 60:593–S101. <https://doi.org/10.1093/geronb/60.2.s93>
24. Mayer KU (1988) German survivors of world war II. The impact on the life course of the collective experience of birth cohorts. In: Riley MW (ed) *Social structures & human lives*. SAGE, Newbury Park, pp 229–246
25. MGEPA (2016) Alt werden in Nordrhein-Westfalen. Bericht zur Lage der Älteren. Ministerium für Gesundheit, Emanzipation, Pflege und Alter des Landes Nordrhein-Westfalen, Düsseldorf
26. Moons P, Budts W, de Geest S (2006) Critique on the conceptualisation of quality of life: a review and evaluation of different conceptual approaches. *Int J Nurs Stud* 43:891–901. <https://doi.org/10.1016/j.ijnurstu.2006.03.015>
27. Motel-Klingebiel A, Ziegelmann JP, Wiest M (2013) Hochaltrigkeit in der Gesellschaft des langen Lebens. Theoretische Herausforderung, em-

Die NRW80+ Hochaltrigenstudie: konzeptueller Hintergrund und Untersuchungsgruppen

Hintergrund: Die Studie „Lebensqualität und Wohlbefinden hochaltriger Menschen in Nordrhein-Westfalen (NRW80+)“ zeichnet ein repräsentatives, differenziertes Bild der Lebensqualität (LQ) in der Hochaltrigkeit. Bisher vorgeschlagene LQ-Modelle berücksichtigen nur unzureichend sowohl individuelle Werthaltungen älterer Menschen als auch gesellschaftliche Werte bei der Diskussion von Konstellationen gelingender Lebensführung. Nur wenige empirische Studien erlauben gegenwärtig einen differenzierten Blick auf Altersunterschiede jenseits von 80 Jahren, nicht zuletzt wegen des geringen Anteils der Ältesten in der Population.

Studiendesign/Rahmenmodell: Der Artikel beschreibt die NRW80+-Studienpopulation und Altersgruppen hinsichtlich ihres biografischen Hintergrunds. Die Nutzung des Challenges and Potentials Model of QoL in Very-Old Age (CHAPO) erlaubt es, Kernpunkte von LQ zu erörtern und die Relevanz von normativen Wertevorstellungen über eine erfolgreiche Lebensführung herauszustellen. Ältere Hochaltrige wurden in der Stichprobe gezielt überrepräsentiert, um aussagekräftige Altersvergleiche zu erlauben. Informationen über Personen, die aufgrund ihres Gesundheitszustands das Interview nicht selbst führen konnten, wurden durch Stellvertreterinterviews mit einem nahen Angehörigen/Bekanntem erhoben. Die Gesamtstichprobe umfasste 1863 Interviews; für 176 Personen wurden Stellvertreterinterviews geführt. Die betrachteten Kohorten 80–84 Jahre (geb. 1933–1937, $N=1012$), 85–89 Jahre (geb. 1928–1932, $N=573$) und 90 Jahre oder älter (geb. vor 1927, $N=278$) unterschieden sich wesentlich mit Blick auf Lebensverlauf und grundlegende Lebensumstände.

Schlussfolgerung: Unterschiedliche Lebensverläufe und resultierende Lebensbedingungen sollten bei der Diskussion von ungleicher LQ im sehr hohen Lebensalter berücksichtigt werden.

Schlüsselwörter

Repräsentative Umfrage · Hochaltrigkeit · Lebensqualität · Kohorte · Altersgruppen

- pirisches Problem und sozialpolitische Aufgabe. *Z Gerontol Geriat* 46:5–9. <https://doi.org/10.1007/s00391-012-0458-4>
28. Münz R, Seifert W, Ulrich R (1999) Zuwanderung nach Deutschland. Strukturen, Wirkungen, Perspektiven. Campus, Frankfurt am Main/ New York
29. Neise M, Janhsen A, Geithner L et al (2019) Lebensqualitäten in der Hochaltrigkeit. In: Hank K, Schulz-Nieswandt F, Wagner M, Zank S (eds) *Altersforschung. Handbuch für Wissenschaft und Praxis*. Nomos, Baden-Baden, pp 581–604
30. Niedzwiedz CL, Katikireddi SV, Pell JP et al (2012) Life course socio-economic position and quality of life in adulthood: a systematic review of life course models. *BMC Public Health* 12:628. <https://doi.org/10.1186/1471-2458-12-628>
31. Pinquart M, Sörensen S (2001) Gender differences in self-concept and psychological well-being in old age: a meta-analysis. *J Gerontol Ser B Psychol Sci Soc Sci* 56:P195–P213. <https://doi.org/10.1093/geronb/56.4.P195>
32. Reissmann M, Jahnsen A, Woopen C (2021) Individual values and attitudes. *Z Gerontol Geriat*
33. Rott C, Jopp DS (2012) Das Leben der Hochaltrigen. Wohlbefinden trotz körperlicher Einschränkungen. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz* 55:474–480. <https://doi.org/10.1007/s00103-012-1452-0>
34. Schilling OK (2005) Cohort- and age-related decline in elder's life satisfaction: is there really a paradox? *Eur J Ageing* 2:254–263. <https://doi.org/10.1007/s10433-005-0016-7>
35. Schmitz W, Mauritz S, Wagner M (2021) Social relationships and living arrangements. *Z Gerontol Geriat*. <https://doi.org/10.1007/s00391-021-01960-1>
36. Staudinger UM (2000) Viele Gründe sprechen dagegen und trotzdem geht es vielen Menschen gut: Das Paradox des subjektiven Wohlbefindens. *Psychol Rundsch* 51(4):185–197
37. Tesch-Römer C, Wahl H-W (2017) Toward a more comprehensive concept of successful aging: disability and care needs. *J Gerontol Ser B Psychol Sci Soc Sci* 72:310–318. <https://doi.org/10.1093/geronb/gbw162>
38. Veenvhoven R (2000) The four qualities of life. Ordering concepts and measures of the good life. *J Happiness Stud* 1:1–39. <https://doi.org/10.1023/A:1010072010360>
39. Wagner M, Kuppler M, Rietz C et al (2019) Non-response in surveys of very old people. *Eur J Ageing* 16:249–258. <https://doi.org/10.1007/s10433-018-0488-x>
40. Wagner M, Rietz C, Kaspar R et al (2018) Quality of life of the very old. Survey on quality of life and subjective well-being of the very old in North Rhine-Westphalia (NRW80+). *Z Gerontol Geriat* 51:193–199. <https://doi.org/10.1007/s00391-017-1217-3>
41. Wahl H-W, Ehni H-J (2020) Advanced old age as a developmental dilemma: an in-depth comparison of established fourth age conceptualizations. *J Aging Stud* 55:100896. <https://doi.org/10.1016/j.jaging.2020.100896>

42. Wahl H-W, Fänge A, Oswald F et al (2009) The home environment and disability-related outcomes in aging individuals. What is the empirical evidence? *Gerontologist* 49:355–367
43. Wahl H-W, Iwarsson S (2007) Person-environment relations in old age. In: Fernández-Ballesteros R (ed) *GeroPsychology. European perspectives for an aging world*. Hogrefe, Cambridge, pp 49–66
44. Wahl H-W, Schilling O, Oswald F et al (2009) The home environment and quality of life-related outcomes in advanced old age: findings of the ENABLE-AGE project. *Eur J Ageing* 6:101–111. <https://doi.org/10.1007/s10433-009-0114-z>