

Rauch, Angela; Burghardt, Anja; Eggs, Johannes; Tisch, Anita; Tophoven, Silke

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lidA–leben in der Arbeit. German cohort study on work, age and health

Angela Rauch · Anja Burghardt · Johannes Eggs · Anita Tisch · Silke Tophoven

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Abstract The aim of the study “lidA-leben in der Arbeit. German Cohort Study on Work, Age and Health” is to provide a database that enables the investigation of the relationship between work, ageing and health. lidA focuses on two birth cohorts of German baby boomers, born in 1959 and 1965. The longitudinal design of the study allows not only the differentiation between age groups but also identification of cohort and period effects. For this purpose, employees of the two cohorts are interviewed repeatedly at intervals of 3 years. The content of the survey is divided into three thematic fields: The first field concentrates on their current work situation and occupation and contains questions on work environment and individual evaluation of job demands. The second thematic field includes a range of questions on the health status of the interviewees. Additionally, a hand-grip strength test is conducted as an objective indicator for long-term development of muscle strength. The last set of survey questions goes into more detail on the household and socio-demographic characteristics of the respondents. This article gives an overview of the currently available first two waves of the lidA panel survey. The article is structured as follows. After an introduction, the main aims of the study are discussed. The subsequent sections describe the research and sampling design as well as the content of the survey. The paper concludes with an outlook, information on data access and the prospects of future research on the basis of lidA.

Keywords Ageing workforce · Older workers · Working conditions · Health · Cohort study

lidA–leben in der Arbeit. Kohortenstudie zu Gesundheit und Älterwerden in der Arbeit

Zusammenfassung Ziel der Studie „lidA-leben in der Arbeit. Kohortenstudie zu Gesundheit und Älterwerden in der Arbeit“ ist es eine Datenbasis zu schaffen, die die Untersuchung der Zusammenhänge zwischen Arbeit, Altern und Gesundheit ermöglicht. lidA betrachtet zwei Geburtsjahrgänge der deutschen Babyboomerkohorten, geboren 1959 und 1965. Das Längsschnittdesign der Studie ermöglicht es nicht nur Alterseffekte zu untersuchen, sondern auch Kohorten- und Periodeneffekte zu identifizieren. Zu diesem Zweck werden Erwerbstätige der beiden Geburtskohorten in einem Abstand von drei Jahren wiederholt befragt. Die Inhalte der Befragung untergliedern sich in drei thematische Bereiche: Der erste Bereich konzentriert sich auf ihre aktuelle Erwerbssituation und berufliche Tätigkeit und enthält Fragen zum Arbeitsumfeld und zur Einschätzung der individuellen Arbeitsanforderungen. Das zweite Themenfeld umfasst eine Reihe von Fragen zum Gesundheitsstatus. Außerdem wird ein Handgreifkrafttest als objektiver Indikator zur Abbildung der Entwicklung der Muskelkraft über die Zeit durchgeführt. Der letzte Bereich der Befragung erfasst Merkmale des Haushalts und der Soziodemographie der Befragten. Der vorliegende Artikel gibt einen Überblick über die derzeit verfügbaren ersten beiden Wellen der lidA-Befragung. Der Artikel ist wie folgt strukturiert: Nach einer kurzen Einführung werden die Hauptziele der Studien diskutiert. Die nachfolgenden Abschnitte beschreiben das Forschungs- und Stichprobendesign und die Inhalte der Befragung. Das Papier endet mit einem Aus-

S. Tophoven (✉) · A. Rauch · A. Burghardt · J. Eggs · A. Tisch
Institute for Employment Research (IAB),
Regensburger Straße 104,
90478 Nuremberg, Germany
e-mail: silke.tophoven@iab.de

blick, Informationen zum Datenzugang und Perspektiven für zukünftige Forschung auf Basis von lidA.

Schlüsselwörter Alternde Erwerbsbevölkerung · Ältere Beschäftigte · Arbeitsbedingungen · Gesundheit · Kohortenstudie

JEL Classification C8 · I10 · J28

Introduction

In the next several decades, the age composition of the German labour force will change significantly. Among other factors, this change is driven by the ageing of the baby boomer cohorts, born in the late 1950s and early 1960s. Subsequent birth cohorts are comparatively smaller. Thus, the working population's average age will continually increase while the size of the working population will decrease (Fuchs et al. 2011; Fuchs et al. 2008). Meanwhile, the statutory retirement age was raised from 65 to 67 years of age. Currently, the baby boomers are at the threshold of higher working age. The labour participation of baby boomers is high, with a labour force participation rate of approx. 90% among men and 80% among women. Although the baby boomers entered the labour market in an economically difficult time, on average, their employment trajectories can be considered to be stable today (Tisch and Tophoven 2012). However, the baby boomers' future transition into retirement and the general demographic shift will result in an increasing old-age dependency ratio and challenge the German social system in an unprecedented way. To remain competitive and to relieve the social system, policymakers have attempted to reduce pathways to early retirement and to preserve the workability of the elderly. The preservation of the workability is of increasing importance, as the statutory retirement age was raised to counter the demographic pressure on the social system. In this environment, the baby boomer generation is the pathfinder cohort as it will be the first cohort that has to work until a higher age than previous birth cohorts.¹

Individual health and healthy working conditions are basic requirements to prolong individuals' working lives. To preserve workability until higher working ages, the promotion and maintenance of individual health is of increasing importance. Some previous studies consider the interrelation between individual health and ageing (Kocka and Staudinger 2009); others are concerned with the association between health, work and employment (Schuring et

al. 2007; Benach et al. 2004; Bound et al. 1999). The new cohort study "lidA – leben in der Arbeit. German cohort Study on work, age and health" combines both approaches, and for the first time, allows investigation of the interrelations between individual ageing, work related factors and health among two baby boomer cohorts.

1 Aims of the lidA study

The lidA study was initiated by the University of Wuppertal in cooperation with the Institute for Employment Research (IAB), the Universities of Magdeburg and Ulm, the Institute for Applied Social Science (infas Institut für angewandte Sozialwissenschaft) and the Federal Institute for Occupational Safety and Health (BAuA) as an associated partner (Hasselhorn et al. 2014). The main goal was to facilitate longitudinal research on work and health of an ageing work force.

A few considerations underlie the interrelations between work, health and ageing.

Working conditions and health In general, the psychosocial functions of work are found to increase individuals' well-being (Jahoda 1982). Moreover, wealth and income can positively impact individual health (Ettner 1996). However, many recent studies also indicate that the changing organisation of work and particularly challenging working conditions are related to impaired health (Bardasi and Francesconi 2004; Boes and Wüthrich 2012; László et al. 2010; Marmot and Bell 2010). One aim of the study is therefore to detect specific working conditions that are especially harmful to individual health and work circumstances that enable healthy ageing at work.

Health and ageing Ageing is often associated with the assumption of declining health. Accordingly, it was shown that chronic diseases and absences from work due to illness increase with age (Ilmarinen 1999). Additionally, it might be assumed that health problems increase with the number of years men and women are exposed to the physical and psychosocial demands of work (Siegrist 2001). On the contrary, because of improved occupational safety standards and medical improvements, older workers today should have better health conditions than earlier cohorts. In fact, greater health differences can be found between different occupations than between older and younger employees (Hasselhorn 2007). The lidA-study provides the opportunity to examine the interrelation between health and individual ageing from a cohort perspective.

Working conditions, health and ageing It can be assumed that the changing organisation of work and working tasks

¹In July 2014, an early retirement possibility for long-term social-insured employees was introduced. However, many of the German baby boomers might not meet the criteria because of postponed labour market entries and more employment interruptions.

will lead to a further differentiation of health patterns among the ageing work force. On average, health problems among older working men and women should decrease. However, specific groups of workers exposed to precarious working conditions should decline in health to an increasing extent (Benach et al. 2000). It can further be anticipated that the differentiation will increase with age and across cohorts. lidA was established to test these and many further hypotheses on the relationship between work, health and ageing.

When establishing the survey, the lidA study group took into account a broader context to examine the described relationships between work and health in an ageing workforce. Social inequalities in work and health, previous life circumstances, and the interrelating influences of socio-economic status, as well as gender differences regarding work participation and individual health conditions, are considered:

Socio-economic status and health It is anticipated that disparities in health further increase between different socio-economic groups (Braveman and Tarimo 2002; Marmot 2005; Schrijvers et al. 1998). For example, differences might occur between occupational classes, between different levels of income or between men and women in different states of employment.

Gender specific ageing, work and health Men and women not only have a different perception of their own health status (Benyamini et al. (2000), but also differ according to many determinants of health (Denton et al. 2004). It can further be anticipated that working conditions (e.g., the psychosocial work environment, different types of jobs, and working time arrangements) as well as non-work settings (e.g., social networks, work-family interface, gender rules) are important factors for gender differences in health (Lundberg 2005; Bildt and Michélsen 2002).

Employment history Most of the lidA-participants, currently at the threshold of higher working age, have already worked for a long period, and their current as well as their prospective work situations are also a result of their previous employment histories. Therefore, a life-course perspective is necessary regarding the interrelations between work, health and ageing (Blane 2006; Elder 1985).

2 Research design and sampling strategy

A research design according to Schaie’s “Most Efficient Design” was established (e.g. Schaie and Caskie 2005), systematically combing cross-sectional and longitudinal data from different birth cohorts. The design allows us to detangle and analyse cohort-sequential, cross-sequential and time-sequential information (c.f. Fig. 1).

The study started with two birth cohorts (1959 and 1965) of German baby boomers. Men and women of both cohorts were interviewed twice within an interval of approximately 3 years. The first wave was conducted in 2011, and the second wave was conducted in 2014. Waves three and four as well as adding a younger birth cohort (born 1971) are still open and depend on further financing.

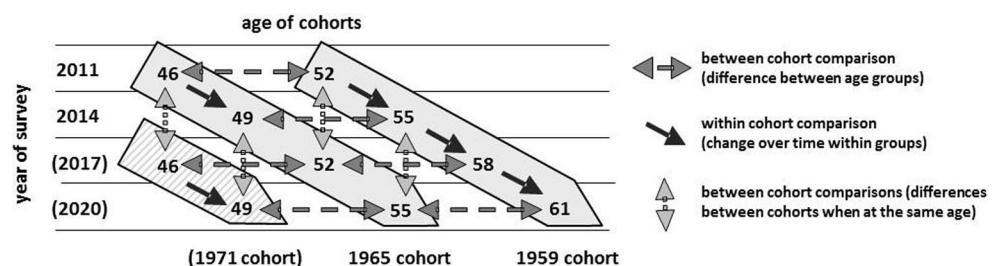
The study design enables research about the effects of and relationships between work, age and health across cohorts as different groups in age and as different generations at the same age as well as changes over time within each cohort.

The initial study sample is a representative sample drawn from the “Integrated Employment Biographies” (IEB) of the IAB (Dorner et al. 2010) and comprises 6,585 men and women born in 1959 and 1965. It covers employees subject to social security contributions on 31st December 2009 (including also minor employment with an income of less than 400 €). Therefore, civil servants and self-employed individuals are not included in the sample. The first wave of lidA was conducted in 2011. Almost 65 % of the original sample was interviewed again in 2014 ($n=4244$).

To guarantee representativeness, the sample covers individuals from all over Germany; 222 regional sample points were drawn with a probability proportional to size. In each of the selected regions, an equal number of individuals were selected for interview. Because panel attrition was anticipated, the 1965 cohort was oversampled in wave one. The oversampling ensured an approximately similar number of interviews of both cohorts at the same age to facilitate cohort comparisons (Schröder et.al. 2013): At wave one, respondents of the cohort of 1959 were 52 years of age, at wave three the cohort of 1965 will reach the same age.

For all those respondents that gave informed written consent, the survey data can be linked to the IEB data, which makes it possible to consider both past and future labour

Fig. 1 Study design



market activities of the lidA respondents. The IEB data covers employment biographies (times of employment, unemployment and benefit receipt) from 1975 to the present and therefore should cover the whole working life of the lidA cohorts. Additionally a work-health matrix, based on aggregated health insurance information for the two cohorts, can be linked (Hasselhorn et al. 2014).

3 Questionnaire and field work

The lidA interviews followed a standardised questionnaire and were conducted using computer-assisted personal interviewing (CAPI). The personal interviews offered the opportunity to implement a hand grip strength measurement to examine individual physical decline as well as a self-administered questionnaire to measure depressive symptoms. The use of a self-administered questionnaire during the CAPI interview collected a standardised measurement of depressive symptoms, the Beck Depression Inventory (Beck et al. 1961; Schmitt et al. 2006). This approach was tested in a comprehensive pre-test.

To assure acceptable response rates and panel retention, a series of measures were implemented. These measures included special trainings for interviewers on the handling of scales, self-administered questionnaires and refusal avoidance. Moreover, monetary incentives for respondents

were implemented as well as tracking activities between the waves (Schröder et al. 2013).

The questionnaire can be divided into three thematic fields (cf. Table 1). The first part of the interview comprises questions on current job and working conditions. These include information on the employment contract, perceived work load and intentions to leave or change workplaces. For those who are not employed at the time the interview was conducted, information on their last job is collected as well as information on job search behaviour. The second part of the interview addresses the self-rated current health status but also includes health-related behaviour and disease history. In the second part of the interview a hand grip strength test is conducted and the respondents are asked to complete the self-administered questionnaire on depressive symptoms.

The last part of the interview collects socio-demographic and socio-economic information. This part also includes questions on household circumstances and personal family obligations.

The lidA questionnaire includes a range of scales (e.g., the Effort-Reward Imbalance Scale (Siegrist 1996; Siegrist et al. 2004), the COPSOQ measurement of psychological stress and strain at work (Nübling et al. 2006b; Pejtersen et al. 2010), scales on selection, optimisation, and compensation (SOC) (Baltes et al. 1999), positive and negative affectivity (Thompson 2007), a work-family conflict scale

Table 1 Thematic overview of the questionnaire

Work	Health	Socio-demographics
Vocational and professional qualification	Assessment of physical and mental health	Marital status
Current employment/last employment	Limitations and disabilities (incl. occupational disabilities)	Household size
Employment status/last employment	Participation in measures of rehabilitation	Earned income (categories)
Employment contract	Pain	Household income (type and amount in categories)
Commuting	Depression (BDI-V as a self-administered module)	Migration background and citizenship
Activity of job search	Insomnia	Personal support
Reasons for not job seeking	Health related behaviour (Physical effort at leisure, smoking)	Work-family-privacy-conflict
Reservation wage	Health promotion	Domestic work tasks
Secondary employment	BMI (over height and weight)	Foster obligation (relationship to the dependent person)
Further education	Hand grip strength measurement	
Working environment	Disease history	
Workability (WAI)	Health insurance membership	
Organisational and personnel changes of the employer		
Qualitative and quantitative working requirements		
Mental workload (ERI, COPSOQ)		
Physical work exposure		
Influence at work		
Affectivity		
Retirement intentions		

(Pejtersen et al. 2010), and the SF-12 scale to measure self-rated mental and physical health (Nübling et al. 2006a). The several concepts, scales and variables included in the lidA study illustrate the unique analytic potential of the lidA data set.

4 Study population

A descriptive overview of the sample composition as well as of some selected characteristics can be found in Table 2. The sample comprises an almost equal share of men (47%) and women (53%), most of them married (>70%). In wave one, approximately 38% of the younger cohort is still living in households with younger children, whereas only 12% of the older cohort lives with children below the age of 14.

At the time of the wave one interview, 65% of the 6,585 participants work full-time; 5% are not employed. In wave two, the proportion of those employed full-time slightly decreases (63%), and the proportion of those not employed slightly increases (6%).

The jobs of the lidA participants are less characterised by manual labour; only approximately 12% report mainly physical work tasks. Almost 70% of the survey participants received further education within the last 3 years prior to the interview.

Concerning the individual health status of the participants, a smaller share of the older cohort reports good or very good health in the first wave. In the second wave these

shares continue to decline. The same applies for self-perceived work ability among those born in 1959. On the contrary, the younger cohort's work ability remains at the same, comparatively high level across both waves.

Thus, lidA provides a sufficient number of cases to study two birth cohorts exemplarily for the generation of German baby boomers.

5 Current research, future prospects and data access

The first and the second wave of lidA were funded by the German Federal Ministry of Education and Research. The unique methodological approach of the study and the opportunity to enhance survey data with register data speaks for itself and offers the opportunity for comprehensive interdisciplinary research of sociological, medical and epidemiological aspects of work, ageing and health. A third and fourth round is currently in planning to be conducted.

Recent research based on lidA data examines the relationship between different employment situations and depressive symptoms. It can be shown that different working time arrangements, job insecurity and low influence at work are associated with depressive symptoms (Burghardt et al. 2014; du Prel et al. 2014; Burr et al. 2014). Furthermore, women in male-dominated occupations show a higher risk of depressive symptoms (see Tophoven et al. in this edition). Another research project examines individual intentions to leave a job or to quit employment at higher working

Table 2 Descriptives and characteristics of the lidA population. (Source: lidA, waves 1 and 2, 2014; own calculations)

Cohort	Wave 1, 2011		Wave 2, 2014	
	1959	1965	1959	1965
<i>Sociodemographics</i>				
Female (in %)	54.1	53.0	56.1	53.7
Migration (first generation) (in %)	10.5	11.7	8.64	8.8
Marital Status: married (in %)	73.5	70.3	73.5	71.4
Single-person household (in %)	12.6	11.8	14.3	12.24
Children under 14 in household (in %)	11.9	37.9	6.6	25.7
<i>Work characteristics</i>				
Not working	5.5	4.3	6.8	6.4
Full time working (in %)	64.0	64.9	61.8	63.8
Part time working (<35 h.) (in %)	30.5	30.8	31.4	30.3
Type of activity: mainly mental (in %)	44.0	45.8	47.3	49.7
Type of activity: mainly physical (in %)	13.5	11.7	12.6	10.7
Type of activity: physical and mental (in %)	42.5	42.5	40.1	39.6
Participating in further education in the last 3 years	68.0	69.8	67.0	69.9
<i>Health characteristics</i>				
State of health: good/very good (in %)	49.2	57.3	45.0	54.9
Average number of days missed because of illness during the last 12 months (in days)	11.6	9.4	11.6	10.7
Rather good/very good perceived employability concerning physical work requirements (in %)	77.1	81.0	73.8	81.7
Rather good/very good perceived employability concerning psychical work requirements (in %)	72.4	73.9	71.7	75.6
Number of observations	2,908	3,677	1,923	2,320

ages (see e.g. Tisch in this edition). Additionally, particular groups of employees can be studied. For example, Leser et al. (2013) examined the health conditions of ageing shift workers. lidA offers the opportunity to answer many more research questions concerning work, health and ageing.

To provide access to lidA data for the scientific community, the data were prepared as a scientific use file that will be available at the Research Data Centre of the German Federal Employment Agency at the Institute of Employment Research in autumn 2015. Currently, the first two waves of the survey data will be available to interested researchers. Additional information regarding the study as well as data documentation (data report and method report) will be available through the website of the Research Data Centre (<http://fdz.iab.de/>).

6 Kurzfassung

Der vorliegende Beitrag stellt die Datenbasis vor, die im Rahmen des vom Bundesministerium für Bildung und Forschung geförderten Projekts „lidA-leben in der Arbeit. Kohortenstudie zu Gesundheit und Älterwerden in der Arbeit“ erhoben wurde. Ziel der lidA-Studie ist es Zusammenhänge zwischen Arbeit, Altern und Gesundheit zu untersuchen. Besonders im Fokus stehen dabei psychosoziale Arbeitsanforderungen und Arbeitsbelastungen und ihr Zusammenhang zur Gesundheit in einer älter werdenden Erwerbsbevölkerung.

Zur Untersuchung der Fragestellungen im lidA-Projekt wurde eine standardisierte Wiederholungsbefragung durchgeführt (CAPI). Die lidA-Population umfasst zwei Geburtsjahrgänge der deutschen Babyboomerkohorten. Zufällig befragt wurden Personen, die zum 31.12.2009 sozialversicherungspflichtig beschäftigt waren (inkl. geringfügig Beschäftigter) und 1959 oder 1965 geboren wurden. Die Stichprobenziehung erfolgte aus den prozessgenerierten Daten der Bundesagentur für Arbeit. In der ersten Welle 2011 wurden 6.585 Personen befragt, in der zweiten Welle 2014 konnten davon 4.244 Personen erneut befragt werden. Das Längsschnittdesign der Studie ermöglicht es nicht nur Alterseffekte zu untersuchen, sondern auch Kohorten- und Periodeneffekte zu identifizieren.

Der Fragebogen umfasst ein weites Spektrum an Fragen, um den Zusammenhang zwischen Arbeit und Gesundheit in einer älter werdenden Erwerbsbevölkerung näher beleuchten zu können. Mögliche soziale Ungleichheiten, der bisherige Erwerbs- und Krankheitsverlauf sowie geschlechtsspezifische Unterschiede in Bezug auf Arbeitsbeteiligung und individuelle Gesundheitsbedingungen wurden berücksichtigt. Die Inhalte der Befragung untergliedern sich in drei thematische Bereiche: Der erste Bereich konzentriert sich auf die aktuelle Erwerbssituation und die ausgeübte berufliche

Tätigkeit. Dieser Bereich enthält Fragen zum Arbeitsumfeld und zur Einschätzung der individuellen Arbeitsanforderungen. Dabei werden bewährte und etablierte Skalen, wie die Effort-Reward-Imbalance Skalen und Instrumente aus dem Copenhagen Psychosocial Questionnaire sowie der Work-Ability-Index, eingesetzt. Das zweite Themenfeld umfasst eine Reihe von Fragen zum Gesundheitsstatus und umfasst beispielsweise Skalen zur Abbildung der funktionalen physischen und mentalen Gesundheit (SF-12) oder auch ein Depressivitätsmaß (BDI-V). Außerdem wurde in beiden Befragungswellen ein Handgreifkrafttest als objektiver Indikator zur Abbildung der Entwicklung der Muskelkraft über die Zeit durchgeführt. Im letzten Teil des Fragebogens werden soziodemographische Maße zur Person sowie zum Haushaltskontext erfasst.

Neben der Beschreibung des Fragebogens wird in diesem Beitrag eine Deskription der Studienpopulation beider Wellen vorgestellt, bevor ein kurzer Überblick über bisherige Forschungsbefunde auf Basis der Daten der lidA-Studie gegeben wird. Zwei Studien auf Basis der lidA-Daten sind auch in der vorliegenden Ausgabe dieser Zeitschrift enthalten.

Der Scientific Community stehen die lidA-Daten ab Herbst 2015 als Scientific Use File über das Forschungsdatenzentrum der Bundesagentur für Arbeit im Institut für Arbeitsmarkt- und Berufsforschung zur Verfügung (<http://fdz.iab.de/>).

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Angela Rauch is a sociologist and researcher in the Department “Joblessness and Social Inclusion” at the Institute for Employment Research (IAB) in Nuremberg, Germany. Her main research interests include labour market of severely disabled persons, occupational rehabilitation of persons with disabilities, the relationship between labour market and health of older work force.

Anja Burghardt was a researcher at the Research Data Centre of the German Federal Employment Agency at the Institute of Employment Research in Nuremberg, Germany.

Johannes Eggs was a researcher at the Institute for Employment Research (IAB) in Nuremberg, Germany. His main research interests are in social epidemiology and in survey methodology.

Anita Tisch studied sociology at the University of Bamberg (diploma) and earned a M.Sc. in Gerontology at the University of Southampton. Since 2009 she is working at the Institute for Employment Research (IAB) as a researcher. Her main research interests are the ageing work force, politics of employability and labour market and health.

Silke Tophoven works as a researcher at the Institute for Employment Research (IAB) in Nuremberg, Germany. Her main research interests include labour force participation over the life-course, the relationship between work and health and gender inequalities.