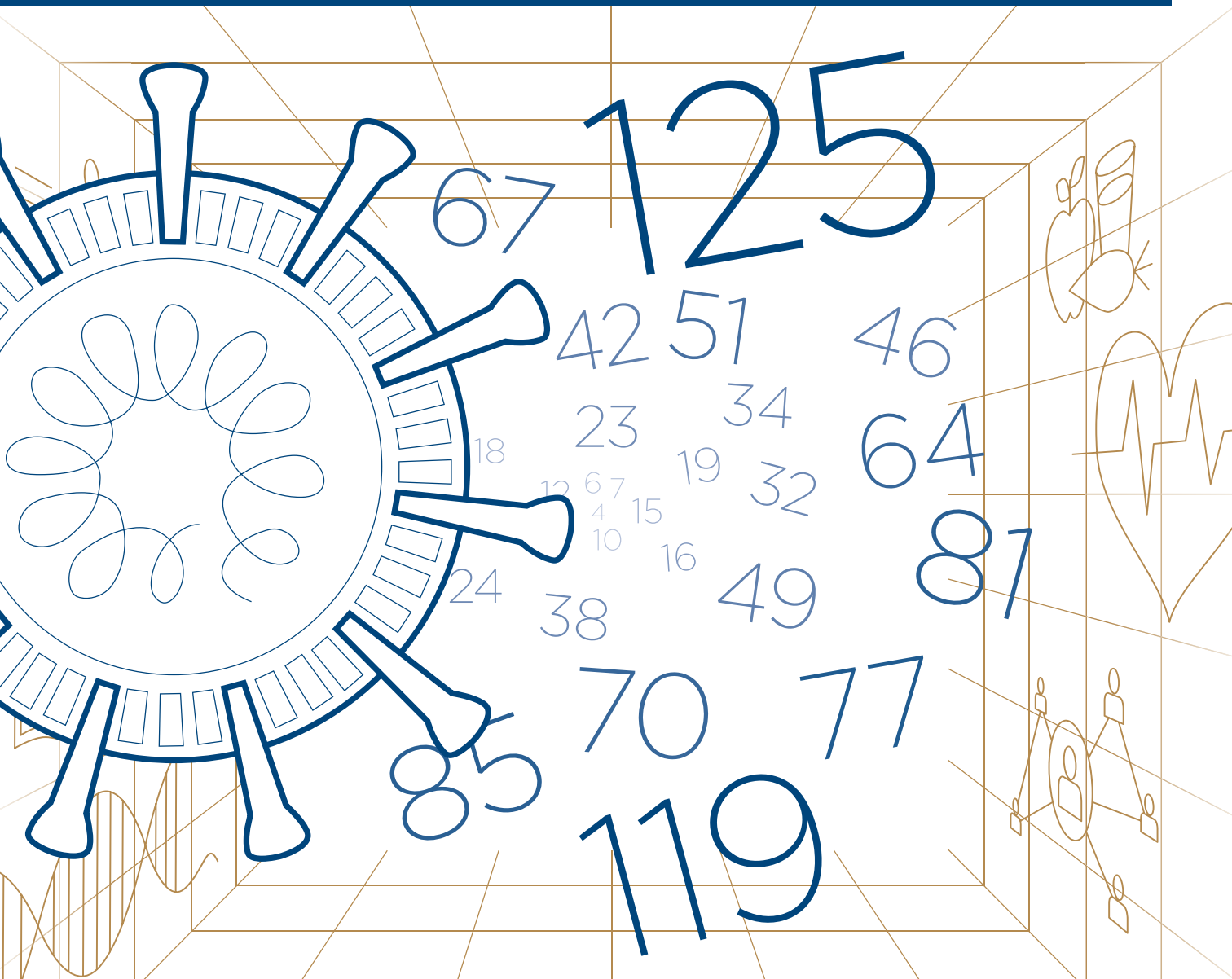




Leopoldina
Nationale Akademie
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SUPPLEMENT | Report on Tomorrow's Science



The COVID-19 pandemic:
Challenges for research on ageing
and the life course in Germany

Supplement to the Report on Tomorrow's
Science "Ageing and the life course: Research
for longer lives"

The COVID-19 pandemic:
Challenges for research on ageing
and the life course in Germany

In the autumn of 2020, Leopoldina’s “Demographic Change” Standing Committee presented its Report on Tomorrow’s Science entitled “Ageing and the life course: research for longer lives”. The report illustrates the challenges of research on ageing and the life course in Germany. The authors postulate that despite the strong potential shown by first-rate work performed in individual disciplines, a high degree of fragmentation and a lack of interdisciplinary exchange are hindering its effectiveness. This amendment to the report identifies additional challenges for research into ageing and the life course resulting from the COVID-19 pandemic.

COVID-19 has created such far-reaching and – in many respects – previously-unknown challenges for our society that the pandemic is already being perceived by many as a historic turning point. The pandemic has revealed the strengths and weaknesses of our healthcare system. The transgenerational aspects that transcend the current situation and have effects on history and individual life stories are obvious. Apart from the fact that people with pre-existing conditions that become more frequent with increasing age are at higher risk of death attributable to COVID-19, these transgenerational aspects also mean that the pandemic has immediate implications for the topics and structures of research into ageing and the life course. It has already become obvious that the challenges created by the rapid spread of COVID-19 are indirectly changing international science, not least because digitalisation, open science and international solidarity – in other words, innovative and effective forms of scientific collaboration – are becoming a model for the future and are widely accepted. The disruptive element of the pandemic certainly creates opportunities by prompting us to question well-established routines and certainties and mobilising new creative powers in the social, scientific and political spheres. The greatest benefit for science lies in the opportunity to document and learn to understand the crisis in all of its complexity in real time. The long-term nature of its consequences makes it particularly interesting for life course research, a fact that is being recognised and discussed by the individual disciplines involved.¹

The pandemic does not change the validity of the conclusions presented in the Report on Tomorrow’s Science, but rather reinforces them. In light of the COVID-19 pandemic, the focus on greater and broader interdisciplinarity in the research on ageing and the life course postulated in the report has become more urgent than ever. Interdisciplinarity should be exploited in its widest sense to build bridges between specialist fields rather than simply between the individual disciplines within a field. Although the pandemic is demanding everyone’s full attention at present, the other important challenges of a society undergoing demographic change undoubtedly persist. Indeed, some of them are becoming even more pressing. This would prove particularly true if it should emerge that survived cases of COVID-19 – or even asymptomatic infections with the coronavirus – have long-term direct or indirect effects on a person’s health. Besides, there is a whole range of additional questions.

In the context of the Report on Tomorrow’s Science, the key issues are the effects of the COVID-19 pandemic on existing demographic trends, society and the way in which science policy should address these research questions. With respect to the impact of COVID-19 on European regions with very varied age structures, the May 2020 newsletter (no. 25)²

¹ Settersten RA et al. (2020).

² Balbo N et al. (2020).

published by the Population Europe network of research centres in the field of population studies calls for a thorough scientific analysis and evaluation of political measures to curb the pandemic, which should extend beyond health indicators – such as prevalence, incidence and mortality – to also cover the indirect effects of the pandemic, such as unemployment, poverty, domestic violence, etc. In other words, the report urges us to overcome the silo mentality of single disciplines and instead develop a comprehensive monitoring system supported by scientific expertise. The “Demographic Change” Standing Committee of the German National Academy of Sciences Leopoldina endorses this statement.

The current COVID-19-related activities of various research disciplines are outlined below.

Upon first glance, the field that seems most affected by the viral pandemic in the public perception is **medicine**. This is aptly illustrated by the media coverage given to virologists, epidemiologists and intensive care specialists, as well as the role of the Robert Koch Institute in providing policy advice on COVID-19. Extensive medical data sets are already being compiled to analyse the relationship between age distribution and morbidity as well as mortality, in some cases comparing such indicators internationally.³ In addition to their relationship with age structure and cultural differences expressed by social behaviour, regional differences in the infection rate, course of infection and risk of death are showing that personal medical history as well as immunological and metabolic biography also play a role. The required cross-disciplinary research activities are already being launched. Many medical professional societies are setting up working groups to compare issues particularly associated with COVID-19 with the available data and compiling recommendations for action and open research questions. Many of these open questions – such as the role of children in transmitting COVID-19 and the role of care homes, but also those of a person’s immunological history, the potential long-term neurodegenerative effects of the infection and the secondary negative effects of social isolation and a lack of physical contact – also have a bearing on research into ageing and the life course. Various interfaces with behavioural research and clinical and non-clinical psychology are emerging. The role of nursing science – a field that is rather under-represented in Germany – should be stressed in this context. Once again, this confirms what the report has already stated regarding other topics, namely that key connections are not always made explicit, sometimes leading to a loss in potential synergy effects. This is why interdisciplinary work holds utmost importance.

This reinforces the key importance of longitudinal population studies mentioned in the Report on Tomorrow’s Science. In this vein, the EU’s Horizon 2020 programme has invited proposals for population-based COVID-19 cohorts covering all ages (H2020-SC1-PHE-CORONAVIRUS-2020-2). Furthermore, a collaboration within the existing network of cohort studies is explicitly supported. In Germany, the ongoing Rhineland cohort study – which primarily aims at uncovering risk factors for neurodegenerative diseases – has already added SARS-CoV-2 testing to its research programme. In this context, the hopefully widespread introduction of one or several vaccines should also be scientifically accompanied from the perspective of age comparisons. In view of the public controversy on obligatory vaccinations and the real or perceived risks of vaccinations, this has strong political and societal implications.

³ For example, Feng Y et al. (2020); Korean Society of Infectious Diseases et al. (2020); Ghisolfi S et al. (2020).

Among the German COVID-19 research programmes, there is one particularly interesting invitation for tenders from the German Research Foundation (DFG), which – although it does not explicitly refer to research into ageing and the life course – stresses the importance of a “cross-disciplinary” approach.

Apart from medicine, the **economic** consequences of the pandemic have also received strong attention from the media. The extent of the shutdown’s impact on large parts of the global economy on the one hand and economic support measures on the other hand will raise many economic research questions that relate to ageing. This is why we need research programmes that explicitly take the aspect of life course into account. Curfews, working from home and restrictions on contact with other households have caused a massive shock to economies, daily lives and – at least in part – personal relationships. Many companies have lost business, and parts of the population have lost income and – where wage subsidy schemes for periods of reduced work have been unable to counteract these effects – their jobs. The extent of this shock will depend on the duration of the restrictions, how long it will take the economy to recover, whether there will be additional waves, which lasting losses the export industry will suffer and how effective the extensive government support and compensation programmes will be.

The potential long-term effects on life courses as researched in **life course sociology** are currently less apparent. These effects may arise if people go through a critical life transition during the period of shock associated with the spread of the coronavirus, which can only be postponed with great difficulty or not at all. The start of professional training is one such event that affects three-quarters of a specific birth cohort. Many companies have postponed training programmes, which means that a large portion of this year’s school leavers cannot access professional training, or – in the worst case – companies permanently reduce the number of available places in training programmes due to a decline in commissions and sales. The number of open places in training programmes in Germany is expected to drop below 500,000 in 2020, which will result in approximately 90,000 young adults not being able to find one.⁴ Similarly, the critical life transition of finishing training is also affected by the crisis; for example, when companies and colleges are closed and exams or job interviews are no longer held. The findings of the “German Life History Study” have illustrated similar long-term cohort effects for people whose critical life transitions coincided with the end of World War II or German reunification, as well as for the baby boomer generation.

This is why flexible regulations must be established for school and college leavers affected by the ongoing crisis, while targeted measures are necessary for people starting or finishing training and those entering the labour market, along the lines of the German training initiative of the early-1980s. Effects on the life course can often be age-specific. Older workers who lose their jobs now will face great difficulties in finding a similar job, or any job at all. Against this background, recording and interpreting prejudices and age-related stereotypes (“ageism”) – which may lead to age-related discrimination – represents a key interdisciplinary interface between sociology and psychology.

While such direct and indirect economic challenges are reflected in political discussions and public discourse, their potential effects on decisions regarding science policy remain to be seen. In any case, the economic support measures require scientific guidance.

4 Maier T (2020).

The interdisciplinary topics covered in the Report on Tomorrow's Science – which the COVID-19 pandemic makes more pressing for science and politics – include the differences in morbidity and mortality between social classes documented all over the world, which have also already been detected in Germany. The negative health effects experienced by large groups of the population who are already at a socio-economic and psycho-social disadvantage have become even more severe in the context of the COVID-19 pandemic. A social gradient can be observed in a wide range of diseases as well as a high incidence of premature death: the lower a person's social position, the higher their risk of disease or death. This also applies to developed societies with a high-performing healthcare system, such as European countries including Germany.⁵ Findings from England and Sweden have clearly shown that the COVID-19 incidence and mortality rates follow a social pattern. Immigrants and people with a low level of education, low income or precarious employment are at higher risk of infection and mortality. Interestingly, this imbalance is more pronounced among the working-age population.⁶ These findings reflect the fact that socio-economic characteristics play a more important role during working age than they do in retirement. They also show that the age-adjusted mortality rate in COVID-19 cases is twice as high in socio-economically-disadvantaged regions as in regions with a higher socio-economic standard.⁷

The COVID-19 pandemic has also revealed the differential vulnerability of gender-specific life courses. A study by Sobotka et al. (2020) found that the fact that the majority of health-care workers are women is coupled with a higher risk of infection for women of working age compared with men in the same age bracket.⁸ Furthermore, several studies have explored the effects of the lockdown on housework, as well as the increase in domestic violence.⁹ This topic demands special attention and analysis to investigate how gender-specific effects of the pandemic will continue to compromise women's opportunities to move forward in their careers. Much evidence seems to point at the fact that the COVID-19 pandemic and its long-term consequences will further exacerbate the discrimination of those members of society who are already disadvantaged and vulnerable, thus intensifying the already-high stress levels experienced by those in the caring professions.

The causes of these vulnerabilities are complex since care professionals are not only more often exposed to infected patients but they also have lower financial and psycho-social protection and are faced with particularly stressful working and living conditions. Factors such as poverty, job insecurity, unemployment and social exclusion have both an acute negative effect during the crisis and a long-term negative effect due to the economic impact of infection protection measures. Epidemiological studies forecast higher rates of stress-related psychological and physical illness.¹⁰ Such disadvantages are also passed on to the affected people's families, in particular in the form of subsequently-limited opportunities for the development of children and adolescents.

These developments have created several new challenges for future research into ageing and the life course. First, clinical, epidemiological and behavioural research will require a systematic and standardised documentation of the socio-economic and psycho-social risk

5 Luy M et al. (2015); Grigoriev P et al. (2019); Lampert T et al. (2019); Mackenbach JP (2019).

6 Drefahl S et al. (2020); Wise J (2020).

7 ONS (2020).

8 Sobotka T et al. (2020).

9 Del Boca D et al. (2020).

10 Kompetenznetzwerk Public health COVID-19 (2020a); Kompetenznetzwerk Public Health COVID-19 (2020b).

and protective factors to which the COVID-19 pandemic has drawn attention, as well as investigating their impact on health and disease through interdisciplinary, theory-based analyses. Second, by identifying population groups with a greater need for preventive measures, intervention studies should aim to reduce avoidable social inequalities with a view to enabling healthy ageing and societal participation. Such activities should investigate both primary and secondary prevention and – depending on the issue at hand – comprise one or several steps: 1) changes in the behaviour of individuals or groups; 2) structural measures within organisations (e.g. workplace health promotion) and within local authorities (e.g. local chains of prevention); and 3) socio-political programmes including federal and state legislation (e.g. through the introduction of minimum wages). Future research funding will be ascribed with the key purpose of strengthening scientific evidence from public health-relevant intervention studies relating to the life course. The necessity of longer funding cycles – which has already been mentioned in the main report – is particularly obvious here. Third, the COVID-19 pandemic has made evident the urgency of a broadened research perspective that allows for the contextual investigation of three important global challenges: the growing socio-economic disparities between and within countries, the growing risk posed by environmental pollution and the high acute and chronic burden of disease in both poor and rich parts of the world, which persists despite medical advances.

The effects of working from home and the resulting potential reversal of decades-long progress made towards separating work and private life are at the interface between economic and sociological studies. This trend – which bears both burdens and opportunities and has an effect on family structures, individual life courses and the world of work – should be the subject of scientific research and analysis.

Initial studies from the area of **educational research** show that the effects of school closures and home-schooling¹¹ will exacerbate existing educational inequalities. Suitable longitudinal studies are needed to identify such inequalities and social investments must be made to curb the social exclusion of the families and children in question as soon as possible; otherwise, these inequalities are at risk of becoming more pronounced in the course of a person's life, and social inequality may become more extreme in old age. Leopoldina has already published an ad-hoc statement on the effects of the COVID-19 pandemic on the education system.¹²

COVID-19 is also creating new tasks for **cultural studies and the humanities**, which are still under-represented in research on ageing and the life course in Germany compared with other countries. In the context of the pandemic, the question whether the protection of the elderly justified the shutdown of large parts of social and economic life has been raised in both conventional media coverage and new social media platforms. This question in itself may imply that older people are regarded as less valuable for society and they mainly pose a burden. This view has been repeatedly voiced in the course of history, in Germany most markedly in the discussion on social policy during the National Socialist regime. Even though such views have faded over recent decades, they still form part of our society's cultural repertoire and may resurge in certain situations. It is quite possible that these views will gain additional importance beyond the end of the shutdown, particularly given that pensioners were hardly affected financially. Research in cultural studies and the humanities

¹¹ Bol T (2020).

¹² German National Academy of Sciences Leopoldina (2020).

plays an essential part in learning to understand the view of ambivalence towards old age. They conceptualise both positive and negative images and stereotypes of old age as resources in the relationship between generations. It could be helpful to analyse the changes in stereotypes of old age in the context of the COVID-19 pandemic.

Relationships between the generations are a cross-sectional issue running across all social, cultural, behavioural sciences and the humanities concerned with research on ageing and the life course. The relationships between the generations have been affected by COVID-19 in many respects, such as when social distancing rules were applied to children and their grandparents, but also through the formation of support bubbles extending to non-family members and young people going shopping for older family friends and neighbours. This also gives new weight to the topic of intergenerational living. There is a need for research into the effects of (various degrees of) relationships between the generations (or a lack thereof) on coping with the shutdown and social distancing. The short- and long-term effects of the shutdown on intergenerational relationships within and outside of families also require further investigation.

All of this boosts the demand for interdisciplinary research into the relationship between the generations, taking into consideration the cultural conditioning that reaches far into the past as well as current changes and continuities. In Germany, cultural, behavioural and humanities research on ageing, the life course and intergenerational relationships – including generational equity – mainly takes the shape of one-off projects with little national or international networking. This is why the opportunities for continuous, interdisciplinary research embedded in the international research community focusing on these topics should be expanded; for example, as part of ongoing population-based longitudinal studies.

Conclusion and recommendations

The Report on Tomorrow's Science highlights challenges and the need for science policy to act in response to demographic change and other challenges that are addressed by research into ageing and the life course. The COVID-19 pandemic has reinforced these challenges and needs, and introduced a set of unique new questions and issues. This is partly due to the enormity of the overall challenges caused by the pandemic, as well as the specific vulnerabilities of critical life transitions and old age in particular. Research policy has taken the first steps to respond to these challenges, although at present there is no systematic and interdisciplinary process. The European Commission's 9th Framework Programme – which largely ignores demographic change – clearly has to catch up with this development, likewise some of the programmes of other science political players and institutions. The societal challenges of demographic change, climate change and – most recently – COVID-19 will have to be considered in a more holistic manner in future due to their interconnected nature. The deficits in the areas of research into ageing and the life course in Germany on the one hand and the institutionalisation of public health on the other deserve particular attention at this time.

The extent and complexity of the long-term effects of the pandemic and the probability of other pandemics (caused by other viruses) in the foreseeable future necessitate a timely response. The pandemic could also offer an opportunity to tackle the challenges and issues of science policy in research into ageing and the life course mentioned in the Report on Tomorrow's Science with greater decisiveness and in a more fundamental approach.

References

- Balbo, N., Kashnitsky, I., Melegaro, A., Meslé, F., Mills, M.C., de Valk, H., Vono de Vilhena, D. (2020). Demography and the Coronavirus Pandemic, Max Planck Society for the Advancement of Science on behalf of the collaborative network "Population Europe", www.population-europe.eu (accessed: 5th October 2020).
- Bol, T. (2020). Inequality in homeschooling during the Corona crisis in the Netherlands. First results from the LISS panel. <https://doi.org/10.31235/osf.io/hf32q>. (Scientific review of this publication still pending.)
- Del Boca, D., Oggero, N., Pofeta, P., Rossi, M. (2020). Women's work, housework, and childcare before and during COVID-19. IZA DP, 13409. <https://voxeu.org/article/women-s-work-housework-and-childcare-and-during-covid-19>. (Scientific review of this publication still pending.) (accessed: 5th October 2020).
- Drefahl, S., Wallace, M., Mussino, E., Aradhya, S., Kolk, M., Brandén, M., Malmberg, B., Andersson, G. (2020). Socio-demographic risk factors of COVID-19 deaths in Sweden: A nationwide register study. *Stockholm Research Reports in Demography*, 23. <https://doi.org/10.17045/sthlmuni.12420347.v2>.
- Feng, Y., Ling, Y., Bai, T., Xie, Y., Huang, J., Li, J., Xiong, W., Yang, D., Chen, R., Lu, F., Lu, Y., Liu, X., Chen, Y., Li, X., Li, Y., Summah, H.D., Lin, H., Yan, J., Zhou, M., Lu, H., Qu, J. (2020). COVID-19 with Different Severities: A Multicenter Study of Clinical Features. *Am J Respir Crit Care Med.*, 201(11), 1380–1388. <https://doi.org/10.1164/rccm.202002-0445OC>.
- Ghisolfi, S., Almås, I., Sandefur, J.C., von Carnap, T., Heitner, J., Bold, T. (2020). Predicted COVID-19 fatality rates based on age, sex, comorbidities and health system capacity. *BMJ Glob Health*, 5(9), e003094. <https://doi.org/10.1136/bmjgh-2020-003094>.
- Grigoriev, P., Scholz, R., Shkolnikov, V.M. (2019). Socioeconomic differences in mortality among 27 million economically active Germans: a cross-sectional analysis of the German Pension fund data. *BMJ Open*, 9, e028001. <http://doi.org/10.1136/bmjopen-2018-028001>.
- Kompetenznetzwerk Public health COVID-19 (2020a). Verschärfen COVID-19 Pandemie und Infektionsschutzmaßnahmen die gesundheitlichen Ungleichheiten? <https://www.public-health-covid19.de> (accessed: 5th October 2020).
- Kompetenznetzwerk Public Health COVID-19 (2020b). Gesundheitliche Folgen der COVID-19 Pandemie bei prekär Beschäftigten. <https://www.public-health-covid19.de> (work in progress).
- Korean Society of Infectious Diseases, Korean Society of Pediatric Infectious Diseases, Korean Society of Epidemiology, Korean Society for Antimicrobial Therapy, Korean Society for Healthcare-associated Infection Control and Prevention, Korea Centers for Disease Control and Prevention (2020). Report on the Epidemiological Features of Coronavirus Disease 2019 (COVID-19) Outbreak in the Republic of Korea from January 19 to March 2, 2020. *J Korean Med Sci.*, 16(10), e112. <https://doi.org/10.3346/jkms.2020.35.e112>.
- Lampert, T., Hoebel, J., Kroll, L.E. (2019). Soziale Unterschiede in der Mortalität und Lebenserwartung in Deutschland – Aktuelle Situation und Trends. *Journal of Health Monitoring*, 4(1), 3–15. <https://doi.org/10.25646/5868>.
- Luy, M., Wegner-Siegmundt, C., Wiedemann, A., Spijker, J. (2015). Life expectancy by education, income and occupation in Germany: estimations using the longitudinal survey method. *Comparative Population Studies*, 40, 399–436. <https://www.comparativepopulationstudies.de/index.php/CPoS/article/view/203/217> (accessed: 5th October 2020).
- Mackenbach, J.P. (2019). Health inequalities. Persistence and change in European welfare states. Oxford: Oxford University Press.
- Maier, T. (2020). Auswirkungen der „Corona-Krise“ auf die duale Berufsausbildung: Risiken, Konsequenzen und Handlungsnotwendigkeiten BIBB-Preprint. Version 1.0. Bonn. <https://lit.bibb.de/vufind/Record/DS-184938> (accessed: 5th October 2020).
- German National Academy of Sciences Leopoldina (2020): 5th ad hoc statement (5 August 2020) The Coronavirus Pandemic: Towards a Crisis-Resistant Education System. <https://www.leopoldina.org/en/publications/detailview/publication/coronavirus-pandemie-fuer-ein-krisenresistentes-bildungssystem-2020/> (accessed: 5th October 2020).
- ONS (Office for National Statistics) (2020). Deaths involving COVID-19 by local area and socioeconomic deprivation: deaths occurring between 1 March and 17 April 2020. London: Office for National Statistics. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsinvolvingcovid19bylocalareasanddeprivation/deathsoccurringbetween1marchand17april> (accessed: 5th October 2020).
- Scholz, R., Shkolnikov, V.M. (2019). Socioeconomic differences in mortality among 27 million economically active Germans: a cross-sectional analysis of the German Pension fund data. *BMJ Open*, 9, e028001. <http://doi.org/10.1136/bmjopen-2018-028001>.

- Settersten Jr., R.A., Bernardi, L., Härkönen, J., Antonucci, T.C., Dykstra, P.A., Heckhausen, J., Kuh, D., Mayer, K.U., Moen, P., Mortimer, J.T., Mulder, C.H., Smeeding, T.M., van der Lippe, T., Hagestad, G.O., Kohli, M., Levy, R., Schoon, I., Thomson, E. (2020). Understanding the effects of Covid-19 through a life course lens. *Advances in Life Course Research*, 45, 100360. <https://doi.org/10.1016/j.alcr.2020.100360>.
- Sobotka, T., Brzozowska, Z., Muttarka, R., Zeman, K., di Lego, V. (2020). Age, gender and COVID-19 infections. medRxiv. The preprint server for health sciences <https://doi.org/10.1101/2020.05.24.20111765>. (Scientific review of this publication still pending.)
- Wise, J. (2020). Covid-19: Low skilled men have highest death rate of working age adults. *BMJ*, 369, m1906. <https://doi.org/10.1136/bmj.m1906>.

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