

Foreword: Special Issue on the Berlin Aging Study

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The articles in this issue are the prelude and first act of a major event in research on ageing. The Berlin Aging Study is a model of research which takes critical account of, builds on, and makes its own distinctive contribution to gerontological theory regarding the course of life in late adulthood. The design of the study is deliberately multidisciplinary and promises to be genuinely interdisciplinary as investigators move beyond providing control variables for one another to exploring hypotheses which predict prospectively the consequence of observed interrelatedness among biological, social and behavioural variables in later life.

The study's design, methods and theory are presented with extraordinary clarity. The objectives and procedures of this complex study are described in detail that will please the methodologically and theoretically sophisticated reader. But the authors do not fall back on jargon that only insiders understand. The limited objective of this initial statement is clearly focused on the psychological, social, and biomedical characterisation of ageing and the experience of ageing in a reasonably representative sample of adults in contemporary Berlin 70 years of age and older. The two basic study samples are 360 consenting participants drawn from a larger pool identified from a Berlin population register and a smaller panel of 156 for whom more detailed studies are available. The reader is not left in doubt about the challenge of securing and maintaining a longitudinal panel of very old adults. Caveats to the reader about potential sources of sample bias are explicit, and step by step one is taken from an initial listing of panel prospects through the final study populations. Comparisons between prospective and final panellists are provided so one can reasonably conclude that every precaution has been taken not to be misled or to mislead with unjustifiable generalisations. Having located the panellists in time and space, the authors make a strong case for confidence that

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their characterisations of later life have some generalisability. That, however, is a conclusion to be tested by appropriate comparisons with other research studies.

The age range of the study panel is 70 to 105, which covers seven five-year age cohorts born between 1885 and 1920. The relevance of potential cohort differences in the panellists is noted but is not at this point explored analytically. Typically in longitudinal research of older panellists, cross-sequential cohort analysis is not possible. In any case, this first report uses *age*, not *cohort* differences as constructs in its analysis. Readers must wait to discover how the issue of cohort differences is taken into account in subsequent reports. The significance of such differences has been consistently documented in gerontological research.

Recognised concepts and measures

The decision of Paul Baltes, Hanfried Helmchen, Karl Ulrich Mayer, Elisabeth Steinhagen-Thiessen and their colleagues to use, whenever possible, constructs and measurement tools from published literature on lifecourse and gerontological research is commendable. The result is increased comparability of findings which both reinforce and occasionally challenge or extend conventional interpretations of ageing in very late life. Across all the disciplines represented (psychology, sociology, economics, medicine, psychiatry), the authors display an unusually broad knowledge of current literature on lifecourse and gerontological research and a perceptive grasp of consensus, nuance, and debate in that literature.

A distinctive theoretical perspective

The initial and continuing emphasis on differential ageing as a basic idea explored in the Berlin Aging Study is in the mainstream of contemporary thinking in gerontology. Earlier concentration on singular, immutable trajectories of development in the later years reflected a biological reductionism not supported by the research evidence. Nathan Shock, the pioneering physiologist in research on ageing, whose work on a variety of biological systems was characterised by an unrelieved series of negative regression curves did not bother in his early reports to address the issue of sample variance. This omission, Dr Shock was heard to remark late in his career, was a mistake.

Observed variation in ageing processes and outcomes is a fact that

required explanation. Yet Shock's mistake was also repeated in the reports of behavioural and social scientists searching for ageing processes with invariant, universal outcomes. Accumulated evidence from comparative research within and between older populations in various times and places has stimulated continuing interest in documenting differential processes and experiences of ageing among older men and women – for example, among older persons of different socioeconomic circumstances, among persons in different times and places, among those who are well or sick. Investigators currently demonstrate their recognition of potential differentiation among older adults beginning, as the Berlin Aging Study does, with a sampling strategy which promises reasonable representation of known sources of differentiation in ageing populations such as gender, socioeconomic status, and health status. One potential source of differentiation which is typically noted but not effectively resolved in the Berlin Study is cohort differentiation. Cohorts have potentially distinctive outcomes as a result of the interaction of developing persons with distinctive aspects of the milieus in which they develop.

The Berlin Aging Study, although focused on a clearly identified study population, is not satisfied simply to provide characterisations of diversity observed in that particular population. The study searches for patterns within diversity and for patterns which are assessed in terms of their time-dependence, their situational dependence, or their dependence on active agency of self-conscious actors.

Another distinctive emphasis in these papers is on ageing as process, an emphasis which in this first report remains largely a promise based on cross-sectional data. Observed age-related differences are not, as the authors observe and report, to be equated with age changes. The longitudinal phase of the research will surely deliver on this promise to study ageing as process. The observed initial differentiation in an ageing population will be used to predict differential time-dependent outcomes.

The implications of observed differentiation in ageing populations also warrant the emphasis found in the Berlin Study on potential beneficial modification of ageing processes. Observed differential outcomes in ageing processes are evidence suggesting the modifiability of these processes and related experiences of ageing. Some outcomes of ageing demonstrably reflect differential access of individuals to important social resources over the lifecourse, resources such as income, education or health care. These resources are external to individuals but part of the explanation of differential outcomes. Differential allocation, in turn, reflects differential sociocultural values and social

policies which, while not necessarily easy to change, are mutable. Evidence of human agents capable of modifying their behaviour in the interest of ageing well is also relevant. And, if crucial social and personal variables in ageing processes and experiences are mutable, one may be reminded of the venerable axiom of experimental and clinical science: to understand something, try to change it. Social scientists think of changing social externalities affecting ageing policies through changed access to income or education or health care. Behavioural scientists are likely to think of new strategies of individuals to enhance their functioning and coping capacities and skills. The best evidence that scientists have in mind the prospect of social and behavioural modification of ageing processes is when they refer to ageing *successfully* or ageing *well*. The investigators of this study are, this observer predicts, ethical interventionists who will have good ideas about how the probability of ageing well in very late life might be enhanced.

Some highlights from initial findings

The substantive questions asked by all investigators in the Berlin Aging Study focus on (1) characterising and explaining observed age differences in relation to circumstances and events in the life history of individuals; (2) assessing the varying degrees and directions of age differences in various domains of life (biological, social, behavioural); and (3) documenting variety in the age dependence of factors in various disciplinary domains.

Socioeconomic resources and differential ageing

Investigators in the Berlin Aging Study are careful to locate their population in time and space. Panellists are from seven five-year age cohorts born between 1885 and 1920. The investigators remind readers that lives are shaped by the historical circumstances. In the case of most of the age cohorts in the study, these circumstances include two wars and an experiment in National Socialism. The reader is alerted to the possible relevance of such historical circumstances but no comparative cohort analysis to specify possible effects is provided at this point. This is an important future task.

The analysis of social and economic variables does continue to feature the themes of differentiation, ageing as social process, and intergenerational relationships in later life. The initial statement of socioeconomic variables as predictors of differential ageing displays considerable theoretical sophistication in exploring the impact of

socioeconomic status on ageing processes and outcomes. It is not enough, these investigators argue correctly, to expect and find that income, social honours, and power have effects on lifecourse outcomes. Which dimensions of socioeconomic status have what effects, from whom over the lifecourse, and why? The questions explored in this initial analysis promise some new insights. For example, the potential effects of differential resources over the lifecourse are both distal and proximate. A life time of poverty, ignorance, and inadequate medical care cannot be equated with poverty only in late life. Data on lifecourse experience of older adults with and without adequate opportunities and resources have been inadequate because investigators have usually not been in a position to explore whether and the extent to which the social entitlements of welfare societies can compensate among late life survivors for earlier socioeconomic deprivation. These are reasons for expecting socially deprived older adults to be responsive and resilient to compensatory resources. The Berlin Aging Study promises useful new information on this issue.

The initial analyses of the effects of socioeconomic variables on ageing processes and outcomes illustrate again the importance of taking into account the different characteristics of older adults and the complex dimensions of socioeconomic status. The unbundling of SES into income, occupation, education, lifestyle, and sense of mastery just begins to illustrate the challenge of conceptualising what is meant by SES as a variable for locating older adults in social space. The simple declaration that “SES matters” is no longer very helpful for anyone who wishes to consider beneficial changes in the allocation of social resources and opportunities. And beyond unbundling the components of SES, investigators must still ask whether any given component of the SES variable has the same predictive power for males and females and for old and very old adults. We may also expect new insights from the Berlin Aging Study on those issues.

Psychological ageing

Paul Baltes, one of the directors of the Berlin Aging Study, and his colleagues have earned their reputation in international gerontology in recent decades with a well-conceived and brilliantly implemented series of studies to explore potential enhancement of cognition, personality and social relationships in later life. The designs of their studies have been elegant; and the conceptualisation and measurements of key variables are intended to be comparable with other mainstream research in psychology. The most distinctive characteristic

of the Baltes research is its realistic optimism about the maintenance of functional capacity in very late life and its belief in the resilience of older adults in mobilising their reserve resources effectively under specifiable conditions. Baltes' research on "selective optimisation with compensation" and on "wisdom" consistently reflects an essential optimism that late life can be better than it is often observed to be.

Regarding intelligence and cognition, the initial findings of the Berlin Aging Study document an expected average age-related decline in cognitive performance. But observed inter-individual differentiation at every age is substantial and is dramatically and visually illustrated in the text by scattergrams displaying differential individual cognitive performance as a function of age.

The Berlin study promises to provide additional insight into two important questions in personality research. One is identification of the multiple domains of personality and self-awareness, the continuity and change among the dimensions, and how observed continuity and change is affected in later life by other components of development such as health and social resources. The Berlin Study of Aging repeatedly stresses the importance of remembering that individual research variables in ageing are most adequately understood as components of a dynamic, interacting system of variables.

A second question focuses on the magnitude of the age-related differences in intellectual and cognitive performance and the characterisation of personality and social relationships documented in the initial analyses. The observed age differences are smaller than inter-individual differences. Psychological ageing is not, the authors conclude, driven by any single domain of functioning.

Depression, dementia and health

The distinctive promise of multidisciplinary research is very effectively illustrated in two articles by psychiatric and medical investigators. The theoretical interests of and the research design preferred by behavioural and social scientists in recent decades have, for a variety of reasons, encouraged neglect of biomedical variables. This neglect has ensured that, when the biological and functional declines become obviously relevant considerations in research on later life, reliable biomedical indicators are not available. The Berlin Study is, consequently, significantly enhanced by the inclusion of biomedical investigators who obviously know the territory of contemporary gerontology and geriatrics. Bibliographic references in these biomedical articles are contemporary and broad ranging and the principal conclusions of

current biomedical research in ageing are understood by the investigators.

The biomedical research reported in these initial papers addresses specifically the strong overall emphasis of the project on differentiation by asking whether, at least in very late life, there is evidence of “de-differentiation”. They answer in the negative and argue persuasively against biomedical reductionism. The authors also provide an excellent rationale for why geriatric clinicians place such emphasis on differentiating symptoms of depression and dementia in later life. Initial impressions from the Berlin data confirm some now common observations in the literature. Age and depression are not closely correlated. Dementia, in contrast, is associated with age but in a complex way which requires the differentiation of memory loss as distinct from personality change.

The trajectory of morbidity and functional capacity reported is, as one might expect from current research, complex and multiply determined. Using age to index these complex forces is just not satisfactory, although age does remain a predictor of physical frailty. Psychosocial factors make an independent contribution to pathology that complements our understanding of the relationship between biomedical factors and ageing. Ultimately *age* may prove to be a useful index of *physical frailty* as distinct from disease specific morbidity but, in general, age is not a precise predictor of morbidity.

Everyday competence

The final article in the first report of the Berlin Aging Study illustrates particularly well the intention of the investigators to write clearly for a multidisciplinary audience and make useful connections between theory and practice. The referents of *everyday competence* are recognisable as competence in self care and competence in relating to one’s expectable world by being at least minimally mobile and competent to manage resources and technology. *Everyday competence* as used in the Berlin Aging Study will be recognised by investigators and practitioners in the field of ageing as competence in Activities of Daily Living (ADL) and in Instrumental Activities of Daily Living (IADL).

While ADL and IADL are frequently used in a variety of practical ways in client assessment and program management, a great deal remains to be done in research to establish the sub-dimensions of the gross measures of functioning, to understand the stability of these dimensions, and to explain how indicators of mastery in fitting one’s competencies to expectable social expectations are maintained and

possibly enhanced. The interdisciplinarity of the Berlin Studies will provide a rich context for exploring how and why differential trajectories of functioning in later life occur and how maintenance and enhancement of mastery of everyday demands can be achieved.

Science and the public domain

Large scale data sets are no longer novel. Large scale data sets that are intended to move quickly and effectively into the public use by the scientific community are novel. The Berlin Aging Study is extraordinary in its intention to have its objectives, design, and findings understood and widely disseminated. It is less clear when and under what circumstances other investigators will have access to this extraordinary scientific resource.

The experience of two large multidisciplinary studies of ageing in the United States indicate the wisdom of moving significant scientific data sets toward the public domain as early as possible. Both the *Baltimore Longitudinal Study of Aging* (Washington, D.C., USPHS, 1984) and the *Duke Longitudinal Studies of Normal Aging* (New York, Springer Publishing, 1985) illustrate that one of the great risks of expensive, broad ranging longitudinal research studies is the underutilisation of data and the risk of too narrow a vision in the theoretical perspective brought to the analysis. The investigators who are the creators of complex projects have, of course, rights to intellectual property. Even in the near term, however, excessive intellectual possessiveness ensures underutilisation in the scientific community.

The early public presentation of the Berlin evidence is daring in a way. Why not wait until every analysis is done, every *t* crossed and *i* dotted? One practical answer is that younger investigators, in the interest of career development, need to get their ideas in the public domain of science. But more importantly, early public presentation will surely increase useful conversations in the scientific community which will benefit the Berlin investigators as much as the scientific community in international gerontology.

Whatever the outcome, the scientific community in ageing research is indebted to colleagues in Berlin for this timely introduction to the Berlin Aging Study. This is a major scientific event with extraordinary promise.