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Acknowledgments

This book benefited from the contributions of many people. The book highlights both the growing inequalities in the nation, especially those disparities involved in the equitable distribution of health and receipt of health care. The growing aging society is very much highlighted by the Jack Rowe lead MacArthur Foundation Network on the Aging Society, and the members of the group of which the Editors are participants. The orientation and framework of the book reflects some of the thinking of the Network, especially the life-course, multilevel and multidimensional view of the etiology and correlates of inequalities in later life.

The production of this volume was aided by grant support to the Editors from the National Institute of Mental Health, National Institute of Aging, and the National Center on Minority Health Disparities. We would especially like to thank Ms. Mireille Prusak for her unflagging assistance in getting the manuscripts prepared and in final form. Her help was invaluable. We are also grateful to the 31 authors and coauthors who worked so hard to get their chapters in on time. It was greatly appreciated.

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Introduction

Increased longevity and reduced fertility are producing a unique occurrence in many countries around the world. The coming aging society is resulting from the reshaping of the age distribution such that there soon will be more individuals over the age of 65 than there are under 15 years of age (Rowe & Berkman, 2009). This is a significant achievement of the 20th and early 21st centuries. It is evidence that we have conquered (or nearly conquered) many challenges, especially in advanced industrial nations. These challenges include: death by childbirth and infectious diseases, better control of chronic illnesses, and reduced rates of infant mortality. The changes have generated many new challenges for individuals and governments (Robinson, Novelli, Pearson, & Norris, 2007). Also significant in the changing age demographics in the United States is the increase in the numbers and types of ethnic and racial minority groups because of the same population fertility and longevity forces, as well as significant immigration (Angel & Hogan, 2004). Individuals in many of these race–ethnic groups have distinct life-span histories and life course experiences that unfortunately are often associated with early disadvantages and health inequalities in later life (Jackson & Govia, 2009).

Considering social, economic, health, and psychological disparities among social groups over the life course demands that we consider how such disparities may arise, how they are maintained, and how they are reproduced over generations. Most theoretical formulations are either silent about the sources of such disparities or are static in their notions of fundamental social causes. In this book we conceptualize disparities as a complex, dynamic function of intergenerational positioning, historical time, period events, and cohort differences. While this conceptualization makes more complex the notion of fundamental social causes, we think that it is appropriate and necessary. It will aid us to understand at any given point in time and space and individual age, how group memberships shape socioeconomic circumstances, life chances, and health statuses.

People arrive at specific points in their life course at particular ages, in particular spaces, with particular liabilities because of a complex web of
genetics, epigenetic influences, parental opportunities, as well as their family, friends, and institutional memberships, and their own unique experiences over their lives. More importantly, because group memberships produce very complex, interweaving experiences dictated by genetic endowments, historical family experiences and opportunities, environmental affordances as well as individual and group life experiences, any individual sharing a particular social attribute (gender, race, ethnicity, etc.) may become enmeshed with the life experiences of others who may share their race, ethnicity, gender, or geographical location. Thus, the individual intergenerational and life-course experiences become entangled with those of other, nonfamilial members of their social groups for whom their contact may only be imagined over vast geographical (and historical) distances (Anderson, 1989). For example, the particular lives of religious Jews is not only a function of their current daily lives, the lives of their contemporary and intergenerational families, but also a rich historical understanding of the embedded nature of the group experiences over an extended historical period encompassing not only the 20th-century holocaust but also Egyptian bondage in 300 BC.

What is becoming clear and is well represented in the contributions to this volume is that individual, intergenerational familial, and social group exposures intersect with historical time, cohort experiences, and individual aging. These intersections produce contemporary social, economic, psychological, and health disparities at different points in the individual life span when the race, ethnic, or socioeconomic group membership(s) of one person is compared to the group membership(s) of another. The chapters in this volume examine the complex web of genetic and epigenetic influences, congenital, and early life circumstances, life exposures, and life experiences that eventuate in late-life inequalities among groups and individuals by social, economic, and race and ethnic statuses.

ORIENTATION TO CHAPTERS IN THIS VOLUME
Section I: Frameworks for Understanding Late-Life Health Disparities
The first section of the book addresses frameworks and approaches to understanding lifetime influences on late-life inequalities in health. In the first chapter Fuller-Iglesias, Smith, and Antonucci make several important points about the crucial role that life-span and life-course considerations play in understanding health differentials among social and economic groups in late life. Drawing a distinction between intraindividual development in the individual focused life-span theories of development and aging, and the more
macroconsiderations of social pathways inherent in the life-course conception of development and aging, they argue for the need for a blending of both conceptual perspectives in understanding the nature of disparities and inequalities in later life.

In the second chapter Glymour, Ertel, and Berkman explore the nature of life-course epidemiology. They examine how core findings from a life-course epidemiology perspective can better inform an understanding of health inequalities in late life, and view this as an important first step in thinking about the most promising points to intervene in order to eliminate disparities in later life. The core premise of life-course epidemiology is that health in late life reflects a lifetime of past exposures, yet the authors feel that this perspective has not been fully integrated into the design and implementation of health interventions or preventive health policies. They note that the life-course perspective can inform several fundamental considerations in developing interventions, for example, when the risk factor or exposure is amenable to modification; when the disease process begins; and the most sensitive time points to interrupt its progression. They note a number of interesting causal etiologic models that may possibly be observed over the life course and examine the implications of each in relation to social-economic position and its effects on cardiovascular diseases and cognitive health in later life. They focus their conclusions on the implications of a number of potential policy choices that can be made in late life and how these may influence the types and timing of interventions that may be most effective in the elimination of health disparities.

The third and final chapter in this section by Whitfield, Bromell, Bennett, and Edwards focuses on the “biobehavioral” research approach as one that characterizes a broad area of research encompassing biological underpinnings of behavior or behavioral implications for biological phenotypes. They note that this broad conceptualization reflects the interest in providing a deeper level of understanding for how a complex phenomenon like aging can be understood in an ecologically valid, multivariate fashion. They describe how the biobehavioral approach is now a widely accepted framework that can be used to improve understanding of age related changes in health and disease in late life. In the first part of the chapter they provide an introduction to the concept, as well as some examples of this new and unique field of inquiry in the areas of stress, cognition, and physical health morbidities. They conclude by noting that the biobehavioral definition and approach describes a useful interdisciplinary approach to understanding health and particularly health disparities. Finally, they view the biobehavioral approach as an integral framework for educating future gerontologists in understanding the inter- and multidisciplinary foci needed to comprehend the complexity of age-related
changes, especially health disparities among socioeconomic and race–ethnic groups in later life.

Section II: Examples of Specific Health Morbidity Inequalities in Late Life

Building on the theoretical, epidemiological, and biobehavioral perspectives in the first section, the chapters in the second section present specific examples of late-life disparities and their potential sources. In chapter 4 Mezuk focuses on cardiometabolic disorders that include cardiovascular disease (CVD), for example, heart disease, such as atherosclerosis or hardening of the arteries, which can lead to angina pectoris or a heart attack and stroke, and Type 2 diabetes mellitus, an endocrine disorder. These cardiometabolic problems have multifactorial, but related, causal origins. Mezuk notes that many potentially modifiable individual-level risk factors for these conditions have been identified, including health behaviors such as smoking and physical inactivity and psychosocial factors such as mental health and social support. However, substantial group inequalities in the burden of cardiometabolic conditions exist. In order to understand determinants of health for the population, it is important to identify risk factors at multiple spheres beyond the individual, including at the level of the workplace, the neighborhood, and political structures.

Picking up the theme of the chapters in the first section, Mezuk presents data that reveal at younger ages little difference between mortality rates comparing across African American and non-Hispanic White male and females. However, across age these mortality rates begin to diverge, and by age 65 the annual mortality rate from cardiometabolic conditions for White males is nearly 60% lower than that for African American males (866.5 deaths per 100,000 versus 1485.6 deaths per 100,000). Mezuk points out that these mortality estimates reflect a combination of disease incidence, disease severity, and access to treatment, all affected by differences in socioeconomic position and race–ethnicity. These population trends demonstrate the need for a life-course approach to understanding disparities in cardiometabolic disorders, because while these inequalities generally emerge at younger ages, they clearly accelerate over the life course. Similar to Whitfield and colleagues in Chapter 3, Mezuk notes that the proximal and distal sources of these inequalities are not well understood. Mezuk reviews relevant literature on the proximal causes of these conditions and discuss how these and other contextual factors influence the observed life-course inequalities in cardiovascular disease and diabetes over the life span. Finally, Mezuk focuses on how observed differences by chronological time, age, gender, race–ethnicity, and geography can further the understanding of the emergence of these disparities over the life
course, and similar to the general points made by Glymour, Ertel, and Berkman (chapter 2), inform interventions that are relevant and responsive to the needs of particular subgroups facing unequal health burdens.

Chapter 5 by Taylor focuses on hypertension, one of the cardiometabolic chronic conditions defined by Mezuk in chapter 4. Taylor notes that it is a chronic health condition that has become a common diagnosis among Americans, particularly African Americans. Hypertension is defined as repeated blood pressure readings that are consistently at or above 140/90 for adults and at the 95th percentile or greater for age and height among children. Taylor reviews research showing that the development of hypertension is influenced by both genetics and lifestyle behaviors. Although several race–ethnic and lower socioeconomic groups are at increased risk for hypertension, African Americans have been shown to have earlier onset and greater severity of hypertension. Thus, Taylor’s chapter focuses mainly on this particular group. She notes that lifestyle behaviors that include lack of physical activity, high fat and sodium food consumption, and resulting obesity all are negative habits that develop early in childhood and have long-lasting effects on health throughout the life span. The diagnosis of hypertension and obesity has been steadily rising among both African American adults and children. Using the biobehavioral framework outlined by Whitfield and colleagues in chapter 3, Taylor suggests that hypertension is a multifaceted chronic disease that is approaching epidemic proportions among African Americans. The bulk of Taylor’s chapter discusses the prevalence of hypertension and obesity, environmental lifestyle risks, genetic risks, gene-environment interactions, related comorbidities, and research trends for reducing this disparate condition across the life span. Taylor concludes, consistent with the recommendations by Glymour, Ertel, and Berkman in chapter 2 that research that begins with children are the keys to developing interventions for early detection and intervention for reducing hypertension inequalities among African Americans in late life. Positive lifestyle behaviors instilled early in childhood can help to prevent obesity and resulting hypertension over the life course. Although the causal factors for hypertension may be particularly affected by epigenetic influences, Taylor notes that the genetic heredity of disease is non-modifiable and that environmental lifestyle behaviors (diet, physical activity, etc.) can influence phenotypic expression of disease and severity of chronic health outcomes. Similar to Whitfield et al. in chapter 3, Taylor concludes that more research on gene-environment interactions for hypertension is needed to provide improved recommendations for disease prevention and management over the life span. Similar to Glymour, Ertel, and Berkman (chapter 2), she notes that gene-environment research on hypertension should include
large longitudinal studies of healthy children of hypertensive parents in order to better understand these interactions.

Section III: Disparities in Cognition and Health in Late Life
Section III focuses on cognition and dementia differences among groups in late life as well as the life-course and life-span influences on both cognition and the influence of cognition and dementia on other chronic health conditions. In chapter 6 Lichtenberg continues the theme in the Taylor chapter and focuses on African Americans, while noting as do all the chapters in the first and second sections preceding, that race–ethnicity and socioeconomic status group differences encompass a wide-ranging number of different groups in the United States. As did Mezuk (chapter 4), Lichtenberg notes that data have been more plentiful on disparities due to race in this area and he draws on these data in his illustrative presentation. Lichtenberg notes that African Americans comprise an important group in the aging community. Not only does this group experience higher rates of dementia than other race–ethnic groups in late life, but they also experience a greater number of vascular risk factors known to enhance the behavioral expression of dementia, such as diabetes, high cholesterol, and hypertension (Mezuk, chapter 4). In the not too distant past, African Americans were legally barred from educational opportunities, and large numbers of African Americans are currently receiving segregated and inferior education. African Americans historically have also had less access to quality medicine. Even today, studies indicate that African Americans may not always be treated as aggressively for chronic conditions, and may not be diagnosed with a primary progressive dementia as early as non-African Americans. As the Baby Boomers age and the older population becomes increasingly ethnically and racially diverse, understanding factors affecting diagnosis and treatment of this group of older adults becomes essential. Lichtenberg, using African Americans as an example, focuses on understanding the factors contributing to increased rates of dementia in older African Americans as well as best practices in clinical assessment of cognition and cognitive decline over the life span. As with all the preceding chapters, the evidence reviewed by Lichtenberg in chapter 6, clearly implicates the important role of early experience on late-life outcomes of dementia among older samples of African Americans who were relatively deprived at earlier periods of their individual and group life course. Building on the biobehavioral and life-course epidemiological frameworks in the first section, Lichtenberg notes that the optimal point of intervention may be early in the life span in order to
aggressively address the observed age-related declines and inequalities found among different socioeconomic and race-ethnic groups in late life.

Building on the observed inequalities in dementia in chapter 6, Ryan and Smith in chapter 7 examine the consequences of these declines and disparities on chronic health conditions. Their chapter focuses on the significant contribution to health inequalities over the life course of cognitive ability and functioning. They consider research on inequalities in longevity as one indicator of the outcome of health inequalities among subgroups within a population. Their chapter also points to the significant role of cognition in healthy lifestyles and health inequalities noting the positive moderate associations between cognitive functioning and socioeconomic status. They highlight the possible important role of selection since often measures of individual differences in general cognitive ability are used to screen for entry into educational institutions and occupations early in life, but that income and wealth in late adulthood are less highly correlated with cognitive ability. In fact, Ryan and Smith report that within homogenous samples of high cognitive functioning persons there are significant differences in personal wealth, income, and occupational achievement. In chapter 7 Ryan and Smith review research showing a strong positive relationship between cognition and longevity. Building on Lichtenberg in chapter 6, they note that the significant long-term influence of cognitive functioning has been found in studies that have linked childhood mental performance with later survival in old age. Similar to Taylor (chapter 5) they note potential genetic explanations for the association between cognition and health with later survival. Using illustrative data from the Health and Retirement Study (HRS) they discuss how these various approaches and findings merge.

Finally, the second part of chapter 7 reviews the theories proposed to explain the association between cognition and longevity. As with Glymour, Ertel, and Berkman (chapter 2) and Mezuk (chapter 4), explanations range from the contribution of cognition to disparities in environmental experiences, health behaviors, lifestyle preferences, and material resources, underlying genetic influences associated with cognition and health, and similar to Whitfield et al. (chapter 3) and Taylor (chapter 5) complicated genetic-environmental dynamics over the life course. Ryan and Smith note the complicated causal models in health disparities that might fit the observed life-course data (Glymour, Ertel, & Berkman, chapter 2) and conclude, consistent with the biobehavioral framework proposed by Whitfield et al. (chapter 3), that the effect of inherited physiological and intelligence factors on later longevity may help to explain the aggregate social group inequalities over the life course. They note that inequalities in material, psychological, and social resources associated with
socioeconomic (and race–ethnic) disparities may interact with genetic predispositions and epigenetic gene expressions to create individual differences over the life span.

Section IV: Functional Limitations and Responses to Stress in Late Life
Section IV builds on the theoretical frameworks and epidemiological data that demonstrate inequalities in chronic conditions to discuss functional limitations, stress, and coping differences among groups in late life. In chapter 8, Kershaw and colleagues explore potential physiological mechanisms associated with positive coping behaviors and strategies, including religiosity—spirituality, mastery, physical activity, meditation, and social support. Research articles that examine the relationship between physiological responses to chronic stress, assessed primarily by differences in the diurnal cortisol pattern in naturalistic settings and positive coping behaviors are considered in this chapter. In reviewing the available literature, the authors conclude that across different studies the findings are simple, but there is some evidence suggesting beneficial physiological effects of positive coping behaviors. The authors suggest that more research is needed to better understand whether or not positive coping behaviors can work effectively to insulate, buffer, or moderate the effects of chronic stressors on disease outcomes and chronic health conditions, especially through the HPA axis and related hormonal pathways. The review in chapter 8 suggests that intrinsic religious faith may help regulate chronic stress via the HPA axis, but there is insufficient evidence at this time to conclude that mastery is an effective coping strategy, and while social support shows some promising results, the findings are not definitive. Intense physical activity and long-term transcendental meditation both show promise. In general, Kershaw and colleagues note that understanding the effectiveness of potential stress reducing strategies have important implications for disentangling the epidemiology of chronic diseases that are more prevalent among low SES and certain race and ethnic groups (e.g., Glymour, Ertel, & Berkman, chapter 2 and Whitfield et al., chapter 3). Kershaw et al. review a variety of coping strategies that may help reduce the body’s response to chronic stressors. Some of these are linked to having negative health consequences and others linked to more positive health outcomes. They conclude that more research needs to be conducted to establish positive coping behaviors as viable choices for alleviating the physiological response to stressful events among different social and economic groups.

In chapter 9 McIlvane builds on the general coping review of Kershaw et al. in chapter 8 to examine a specific, though multifactorial, chronic condition,
arthriti. She suggests that there is a dearth of research on the reasons for disparities among African Americans and Latinos with arthritis. She notes that this is unexpected given the prevalence of arthritis over the life span and its demonstrated influence on functioning and quality of life. As do all other chapters in the volume, McIlvane implicates a combination of factors that may contribute to disparities in arthritis, including socioeconomic status, access to health care, chronic stress, illness perceptions, and mistrust of the health care system. Just as we noted earlier, the aging of the baby boomers and the increasing racial–ethnic diversity of our older population, will increase the importance of arthritis as a significant public health issue. Unfortunately, her review reveals scant research on arthritis among African Americans and even less among Latinos.

McIlvane argues the importance of studying arthritis inequalities based upon racial–ethnic disparities in arthritis prevalence, symptoms, and treatment. She also considers the little understood potential contributors to arthritis health disparities including barriers to access to care, mistrust of medical system, and differences in illness perceptions. Finally, she considers the role of protective factors, notably religion–faith, coping, and family support that may be beneficial particularly to race–ethnic minority group members. McIlvane concludes that there is consistent evidence for racial–ethnic differences in arthritis symptoms and under utilization of effective treatments. Health disparities and especially their correlates, however, have received little attention thus far in arthritis research. She suggests that in order to understand the observed inequalities in late life more research needs to focus on the unique contexts and cultural traditions–values of racial–ethnic minorities. This will enable a fuller understanding of their experiences living with arthritis and other stressors (e.g., discrimination, financial strain) as well as their experiences interacting with the health care system.

**Section V: Contextual Influences on Health Disparities in Late Life**

It is clear that a major objective of this volume is to illuminate that context is important in understanding observed differences in the incidence and prevalence of health differences among social and economic groups in late life. Context is considered broadly and includes genetic and epigenetic influences, early life experiences, generational membership and family influences, ones race–ethnic background and cohort and period influences, as well as the individual and group life-course and life-span trajectories that occur as individuals and cohorts age.
The chapters in the fifth section address the role of specific contextual influences using illustrations of individual differences (e.g., Ryan & Smith, chapter 7), work, and national origin on disparities in late life. Gerstorf and colleagues in chapter 10 begin at the lowest context and focus on late life well-being and death to illustrate the ways that between-person’s disparities contribute to observed inequalities. More broadly, Gerstorf and colleagues are interested in how this line of work informs and contributes to refinement in extant theories of well-being in late life, and specifically conceptual notions that link mortality as a major force underlying developmental change in the last years of life. They argue succinctly that the changes in well-being that occur late in life provide a helpful lens for exploring between-person disparities and the correlates of these disparities. Their review of the empirical evidence suggests that end-of-life declines in well-being and psychological health may be a normative experience, noting that these declines are more a function of closeness to death than age itself. At the same time, not all individuals experience their last years alike, and while end-of-life decline may be normative, it should not be considered inevitable. Similar to Whitfield et al. (chapter 3) they suggest that there is tremendous variability in late-life patterns of change as people age. For many people well-being declines sharply near death, whereas others maintain their well-being into their last years. Gerstorf et al. also examine these between-person disparities in late life as well-being outcomes change, noting some of the key factors that contribute to inequalities. These factors encompass key predictors of mortality and well-being, including age at death, gender, education, and disability. Finally, following the conclusions of authors in prior chapters, they suggest that these factors may not only reside at the individual level, but may also be found at the community and society. They suggest some of the possible mechanisms linking macrocontextual factors to individual outcomes and inequalities in individual well-being changes in late life (see particularly Glymour, Ertel, & Berkman, chapter 2; Whitfield et al., chapter 3; and Ryan & Smith, chapter 7).

In Chapter 11 Brown takes a conceptual step back to consider work and the workplace as an important source of material and social disparities that contribute to well-being postretirement in later life. Her chapter focuses on the complex relationship between work, retirement, race, and health disparities among aging African Americans to illustrate the role of race–ethnicity more broadly, but also more sharply in delineating how early life-course work opportunities and experiences influence the nature of changed roles such as retirement (see Lichtenberg, chapter 6). This chapter utilizes a life-course perspective to consider how preretirement experiences, including health and job statuses, affect transitioning out of the labor force for these older Americans.
She demonstrates how life-course theorizing and research (see Fuller-Iglesias et al., chapter 1) facilitates the examination of continuity between pre- and postretirement experiences. Brown concludes that understanding the health consequences of labor entry, experiences, and exits is important in guiding policy to assist the growing aging population. She suggests that illness and disease limits productivity of adults during their most productive working years, affecting the entire society. Excessive health problems among any and all groups are associated with increases in the use of social services, decreased accumulation of postretirement benefits, and places undue strain on the health care and retirement systems.

The final chapter in this section uses control beliefs and disabilities as an example to illustrate how a cross-national comparison can illuminate the nature of inequalities in the United States. Clarke and Smith focus on differences in the United Kingdom and the United States to make this point. They note that a major reason for comparing health across nations is an attempt to understand how differences in macrosocial and economic contexts shape individual health and well-being. Much of this research has been undertaken at a population level to examine the underlying association between social inequality and health outcomes such as average life expectancy and the prevalence of preventative illness (e.g., cardiovascular disease, disability). Attention has been given to country differences in terms of the absolute levels of social inequality (especially the extent of poverty) and the magnitude of relative inequality (e.g., the differential gap between rich and poor). There are also country differences linked to gross national product and the allocation of finances to health services. Beyond economic and political mechanisms, contemporary researchers also consider the roles of cultural and psychosocial factors at community and individual levels.

Clarke and Smith note that cultural differences in beliefs, health-related behaviors, and social cohesion have been highlighted as important factors involved in health disparities, both within and between countries, and as modifiers of the association between social inequality and health outcomes. They also focus on cross-national differences in belief systems, specifically beliefs about personal control found between the older populations in the United Kingdom and the United States and the moderating role of control beliefs in the social inequality–health outcome association. They use national data from the United States and England to illustrate the socioeconomic gradient in health across the two countries, and show how it varies according to sense of control. Clarke and Smith conclude that cross-national differences in these relationships are partly a function of differences in the lifetime social construction of a sense of control. They note that cultural influences across
the life course play an important role in shaping late-life health inequalities in different sociopolitical contexts.

**Section VI: Approaches to Public Policies to Address Health Disparities in Late Life**

We end this volume on a public policy theme. Just as Clarke and Smith (chapter 12) highlight the importance of macropolitical, economic, and social factors interacting with group and individual differences, this final chapter in the volume focuses on public policy proscriptions that might help to address observed inequalities in health in late life. Miles begins from a perspective that assumes the multideterminant view of health and health disparities illustrated repeatedly in the prior five sections of the book. Miles notes that public health data consistently show subpopulations that experience higher than average rates of disease and mortality. These groups include racial and ethnic minorities, persons with less than a high school education, persons clustered in specific geographic regions, and members of households that are supported by low wage jobs. She lists several factors that may contribute to these rates, but focuses specifically on barriers in access to health care, a major incentive driving the legislative efforts toward health care reform now occurring in the 111th Congress.

A central theme of Miles’s chapter is that health disparities researchers have focused almost exclusively on studies that document differences (witness studies), illuminate possible correlates and causal factors (etiology studies), or measure the effectiveness of a particular intervention on individuals (treatment effectiveness studies). She believes that a focus on a perspective that includes both the individual and the system of health care can accomplish the objectives of these three types of studies (i.e., witness, etiology, and treatment effectiveness, respectively) while adding an assessment of the impact of systemic factors. In order to illustrate this change in focus Miles considers the problem of health disparities in the Medicare population noting that current policy research is focused exclusively on Medicare spending and system financing. She suggests that dual eligible beneficiaries—persons simultaneously enrolled in Medicare and Medicaid—form a cohort of the nation’s most vulnerable older adults and asks the question of what would the health disparities research framework represent for older adults who are dual eligible? Using this model of dual eligibility Miles argues in the reminder of the chapter for a public health research agenda on disparities and inequalities that incorporates policies directed toward the health care delivery infrastructure. She believes that current health care reform efforts present an opportunity for
researchers to prospectively study health disparities and related policies and to work collaboratively with federal, state, and local governments to make changes at the intersections of health care reform and legislation to address more comprehensively the elimination of health inequalities.

CONCLUSION
Collectively, the chapters in this volume illustrate the complexities of studying health inequalities in later life. Though selective, since no one volume can address the entire landscape of this difficult topic, they provide a broad sampling of recent thinking and research on this important set of issues. Our authors speak in many voices. Their range of focus moves from genetics to geography, from one minority group to several. Reflecting the current acceptable practice in scientific writing (see the American Psychological Association Publication Manual), our authors use the terms African American and Black interchangeably. We believe these multiple voices enrich the dialogue and encourage discussion within, between, and across topics. The chapters in the first section address the theoretical perspectives on a life-course/life-span perspective (Fuller-Iglesias et al.), as well as two meta approaches to empirical research that grow from this perspective, life-course epidemiology (Glymour, Ertel, & Berkman) and biobehavioral (Whitfield et al.) frameworks. These perspectives emphasize the intersection among genetic, environmental, and social group influences from conception to death that produce individual trajectories and risks for morbidity and mortality at different points in the individual life course. The chapters in the second section represent examples of specific diseases, cardiometabolic illnesses (Mezuk) and hypertension (Taylor) for which research has implicated both a biobehavioral genetic and epidemiological perspectives on etiology and process over the life course.

The chapters in the third section represent examples of the important role of cognition in health disparities. They illustrate both the etiology and correlates of poor cognition in different race–ethnic groups (Lichtenberg), and the manner in which low cognition may be related to economic and social group differentials in health and longevity (Ryan & Smith). The first chapter in this section (Kershaw et al.) picks up on this theme and addresses how positive coping behaviors may be related to the biobehavioral indicators described in chapter 3, representing disparities in underlying biological responses to risk exposure, disease onset and progression, and chronic health disorders. The second chapter (McIlvane) in the fourth section addresses functional limitations due to chronic disorders, using arthritis as an example. Arthritis,
which afflicts a large portion of the population in late life, and is thought to
be much more prevalent among African Americans and Latinos. The author
(McIlvane) addresses ways of coping with arthritis that may be culturally and
age graded.

The chapters in the fifth section address the range from individual to
large organizational and macrocontextual factors that may influence observed
disparities over the life course, eventuating in late-life inequalities. They
illustrate influences of individual differences (Gerstorf et al.), to the work
place (Brown), to differences that may represent national cultural and politi-
cal system differences (Clarke & Smith). The final section concludes with a
focus on the need to consider the ways in which organizational structures,
and especially the nature and organization of health care delivery systems,
may intersect with the genetic, individual, social, economic, and group so-
cial influences on life-course development risks for poor health in late life.
Miles suggests that the current emphasis on health care reform may provide
a unique point in history to bring about systematic changes. Such changes
may address deficiencies in systems of health care that contribute to observed
economic and social disparities over the life course that result in unequal
prevalence rates of chronic disease and early mortality.

In this volume we have focused on the age, gender, socioeconomic,
cultural, and race–ethnic graded influences on life-course development that
culminate in unequal burdens of health morbidity and mortality for some
groups late in life when compared to others. This examination also reveals
that studying the stark disparities and health inequalities among groups
illustrates the appropriateness and utility of the basic life-course frame-
work, encompassing the intersection of genetic, socialization, cumulative
life experiences, and risk exposures on the fundamental nature of life-span
development.

REFERENCES

SECTION I

FRAMEWORKS FOR UNDERSTANDING LATE-LIFE HEALTH DISPARITIES
Life-course and life-span theoretical perspectives have important implications for gerontological studies. Both frameworks address patterns of change over time that inform our understanding of the process of aging. In considering health inequalities in later life, both life-course and life-span perspectives play an integral role in determining micro- and macrolevel influences on health and well-being in late life. In this chapter we consider the theoretical underpinnings of a life-long approach to health disparities, major themes in the life-course and life-span perspectives on aging, and cumulative inequalities and disparities on well-being and health.

Theoretically, there is now a broad consensus across many disciplines in the social (sociology, psychology, philosophy, economics, and demography) and medical sciences (biology, genetics, medicine, public health, and epidemiology) that in order to understand the phenomena of old age and aging processes it is important to take a life-span developmental and life-course perspective. Economists sometimes call this a life-cycle perspective. For some research disciplines, this idea has a long history, in others the history spans several decades, and for a few it remains counterintuitive. Historically, phases (e.g., childhood and old age) and experiences (e.g.,
education and health) of the life course were considered somewhat independently, because few believed that the normative events of early life had consequences for old age.

There are many similarities between the two perspectives, the most obvious one being that both advocate taking a long-term, multilevel, contextual, and dynamic view of aging. Life-span theories draw attention to the length of the life of an individual and to the idea that processes and trajectories of development and aging are lifelong (Lerner, 2002). Life-course theories, in contrast, differentiate between subgroups in society and focus on the social pathways that define the sequence of events, transitions, roles, and experiences in the lives of individuals (e.g., Alwin & Wray, 2005; Settersen, 2007). While life-span researchers are interested primarily in understanding microlevel (endogenous) processes within the aging individual (e.g., the aging brain and mind), life-course researchers typically analyze the macrolevel (exogenous) processes that characterize the influence of groups, organizations, and institutions on the individuals within them.

Despite these differences in topical emphases and levels of measurement, in general, there is much concordance between the life-span and life-course perspectives. Together these perspectives present a comprehensive theoretical framework of human development over time. Recent advances in both suggest that there is considerable value in integrating the premises and conceptualizations of both theories and expanding them to form a truly multidisciplinary framework.

The life-span and life-course perspectives each, by moving beyond the study of development as isolated and age specific, recognize that all age periods (including old age) are dynamic and cumulative. To understand the human experience it must be viewed across time. Research should examine both micro- and macro-influences, consider gains as well as losses, and identify factors of risk and resilience. These frameworks can be seen as integral not to preventing aging, but rather to promoting optimal development at all ages, including old age. In sum, because aging is a lifelong process and old age is the result of a lifetime of experiences, it is essential to study old age within a life-span and life-course perspective. Increasingly researchers in many of the disciplines involved in gerontology are adopting this general position. We believe that only by adopting this perspective can we fully understand the health inequalities that are evident in later life.

The next section of this chapter outlines important major themes from life-span and life-course perspectives of aging and describes how they are integral to understanding the aging society.
MAJOR THEMES IN THE LIFE-COURSE AND LIFE-SPAN PERSPECTIVES ON AGING

It can be argued that the primary distinction between life-span and life-course theories is the disciplinary lens that logically guides a divergence; on the weight placed on comprehending individual versus social contextual processes. The central themes that are listed in Table 1.1 highlight a few of these disciplinary differences. Presenting such a tabular distinction harbors the dangerous connotation that life-course and life-span researchers occupy opposing camps, a viewpoint that we especially do not intend to convey. Instead, our intention in this section is to provide a didactic overview of a select illustrative set of salient themes that guide the choice of specific topics and methods among researchers in different fields. As illustrative examples, they can not reflect the eclectic, conceptual state of contemporary research on aging and the many models of biopsychosocial co-construction of aging. Life-span researchers, for example, increasingly utilize study designs that examine the role of social context, subgroup variation, and cohort in the examination of psychological outcomes (Heckhausen, 1999). Similarly, life-course researchers have moved toward the incorporation and examination of individual-level processes in their models and analyses (e.g., Berkman, Glass, Brissette, & Seeman, 2000; Mayer, 2003). Both perspectives are fundamentally important for gaining a fuller understanding of health inequalities in later life.

THEMES IN LIFE-COURSE RESEARCH

Life-course theory takes a macrolevel, group, or societal view of developmental influences. It is a theoretical framework for addressing the temporal sequence of age-graded roles and expectations that are embedded in social institutions

<table>
<thead>
<tr>
<th>Major Themes</th>
<th>Life Course Perspective</th>
<th>Life Span Perspective</th>
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<tr>
<td>Age, cohort, &amp; historical effects</td>
<td>Individual differences</td>
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<td>Accumulation of (in)equality</td>
<td>Adaptivity and plasticity</td>
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<td>Life Course &amp; Life Span Perspectives</td>
<td>Linked lives</td>
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<td>Differential trajectories and pathways of aging</td>
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TABLE 1.1

A Selection of Major Themes to Illustrate the Life-Course and Life-Span Perspectives
and history (Elder, Johnson, & Crosnoe, 2003; Mortimer & Shanahan, 2003). The life-course perspective makes a unique contribution in understanding, at the population or group level, the roles of age stratification, cohort and historical period effects, and the accumulation of (in)equalities over time.

**Age, Cohort, and Historical Effects**

Normative age structuring and age stratification are ideas in the forefront of life-course theories and research. In general, these concepts describe the fact that most societies use chronological age formally and informally to structure the experiences, roles, and statuses of individuals (Dannefer & Uhlenberg, 1999; Riley, 1987). In a formal way, social institutions define, segment, and construct individual lives in the interconnected domains of education, family, and work over the life course (Mayer & Tuma, 1990). Because some social institutions (e.g., education, work, retirement) are typically created for specific age groups, chronological age also stratifies the ways that opportunities are, or sometimes are not, made available to individuals in a population. At an informal level, individuals and subgroups create beliefs and attitudes about age categories (e.g., young, middle age, old), aging, and the kinds of behavior appropriate to individuals of different ages.

Kohli (1986) proposed that the life course itself has become increasingly institutionalized. He considers the normative age-graded structural patterning of education, work, and retirement as evidence that the life course has become a modern social institution. This institutionalization of the life course suggests that there is a standard life pattern that is guided by rules about how individuals structure their lives that are upheld by an infrastructure of social and legal norms and organizational systems (i.e., education: Kohli, 2007; Kohli & Meyer, 1986). Some are more advantaged by the institutionalization of these life-course patterns while others are not. The three central features of the institutionalization of the life course are chronologization (the saliency of age and time), institutionalization (ways in which the life course is structured by organizations, institutions, and the state), and standardization (the resulting normativity of life-course patterns). In effect, the societal context influences and implements a standard life course. Each of these features contributes to inequalities and different pathways across the life course.

The principle of *time and place* reflects the notion that the life course of individuals is embedded and shaped by the historical times and places they experience over their lifetime (Elder et al., 2003). The primary emphasis of the principle of time and place is the importance of *historical effects* on human development. Major historical events have the power to not only transform societies, but also have great impact on development at the generational and individual levels. A prime example of how time and place have significance
is the effect of the Great Depression (Elder, 1974). Individuals living in the United States were all affected by this major historical stressor. However, a cohort effect—differentiation of the lives of different birth cohorts as a result of historical change—also occurred as a function of the differential timing of the Great Depression in the lives of children, adolescents, and young adults; some cohorts were more vulnerable than others. Similarly, African Americans were differentially affected by the Civil Rights Movement depending upon their age and cohort. Young people had new opportunities opened to them such as access to education, while old people were not able to take advantage of this new access (Jackson, 1993). The preceding examples illustrate how time and place (i.e., birth year and historical context) can result in differing outcomes between cohorts. A period effect occurs when a historical event has a similar effect on multiple birth cohorts, such as 9/11 and Hurricane Katrina.

In contrast to the principle of time and place that focuses on historical influences on development and aging in different generations, the principle of timing in lives focuses on time in relation to individual trajectories. This principle highlights the fact that the effects of life transitions, events, and behavioral patterns on human development vary according to the timing in a person’s life (Elder & Shanahan, 2005). In effect, whether the timing of a transition or life event is normative or nonnormative directly affects the individual’s developmental outcomes. Elder describes four concepts that are related to timing in lives (Elder et al., 2003): (1) Social pathways that refer to patterns of education, career, family, and living arrangements that are socially ascribed and followed by individuals and groups within a society; (2) Trajectories that refer specifically to the sequences of roles and experiences that make up an individual’s development throughout the life course; (3) Exit transitions, changes in state or role, which refers specifically to times in the developmental trajectory when the individual makes a normative change; and, (4) Transitions that generally reflect on time role changes, such as becoming a parent during the childbearing years or becoming a widow in old age. These turning points can involve substantial changes in the direction of an individual’s life and generally reflect nonnormative or unexpected life events. An example of such a turning point is deployment to a war combat zone or becoming a widow in early adulthood. Each of these concepts represents the temporal nature of the life course and points to the importance of considering the differential impact of inequalities.

### Accumulation of Equalities and Inequalities

Status disparities are fundamental aspects of virtually all societies and social groups. Status is structured and ascribed on many dimensions, for example, by wealth, knowledge, competence, physical strength, health, group membership
(e.g., ethnic group, immigrant, sex, age), and perceived contribution to a
group. A person’s position in the social stratification system is the most consis-
tent predictor of his or her behavior, attitudes, and life chances. Some authors
describe this as an individual’s life course capital (e.g., O’Rand, 2003). One
consequence of the social and historical structuring of the life course is that it
is associated with a hierarchy of opportunities and exposure to constraints and
risks for individuals and groups within a population. At a single point in time,
this contributes to observations of heterogeneity in resources, such as wealth,
education, and health. Some individuals have greater access to resources and
more opportunities than others. Because of their birth cohort and position in
the life course, some individuals benefit from technological advances or periods
of economic growth whereas others do not. Furthermore, personal histories of
differential opportunity and exposure are transferred from one generation to
the next in the contexts of families and social groups.

Additionally, disadvantages may accrue over the life course and have a
cumulative effect on outcomes late in the life, such as health and longevity
(Glymour, Ertel, & Berkman, 2009). Social disadvantage is likely to be related
to stress exposure. Cumulative disadvantage is the term used to refer to dis-
advantages that sum over the life course and predict worse health in old age.
Much of the research on cumulative disadvantage focuses on socioeconomic
status, race, ethnicity, and gender (House, Latz, & Herd, 2005; Marmot,
2006; O’Rand, 2003; Smith & Kington, 1997). Older adults with lower edu-
cation levels experience worse health sooner than their higher SES counter-
parts (Marmot, 2006; Willson, Shuey, & Elder, 2007). Moreover, Shuey and
Willson (2008) found a cumulative disadvantage for Blacks in that they did
not experience the same health benefits from advanced education that Whites
did. House and colleagues (2005) suggest that understanding social dispari-
ties in health is a key problem for life-course researchers and is essential to
understanding health and illness in old age.

Race and ethnicity are important group level factors to address in ag-
ing research as they encompass biological, environmental, historical, cultural,
and social influences. Within the United States, ethnic and racial minorities
show relatively poorer status in old age as compared to their majority White
counterparts (Jackson, Brown, & Antonucci, 2004). Of note is the fact that
based upon current estimates of mortality and life expectancies, older minority
populations are growing rapidly and will continue to do so (Jackson & Sellers,
2001). Some data indicate a crossover effect in that some minority populations
of advanced ages, for example Blacks (e.g., Gibson & Jackson, 1992), may
be more robust in comparison to Whites, perhaps reflecting different aging
processes and selection over time for hardier individuals (Manton, Patrick, &
Johnson, 1987). However, at every point earlier in the individual life span most members of racial and ethnic minority groups are at greater mortality and morbidity risk than Whites (Jackson & Sellers, 2001).

A life-course perspective illuminates the fact that current and aging cohorts of underrepresented race–ethnic minorities have been exposed to conditions that will profoundly influence their social, psychological, and health statuses from childhood to adulthood and older ages in the years and decades to come (Baltes, 1997; Barresi, 1987). Indeed, historically gerontologists have described the double (race, age) and triple (race, age, and gender) jeopardy experienced by some groups.

**THEMES IN LIFE-SPAN RESEARCH**

The life-span perspective complements the life-course perspective with a greater focus at the individual level. The life-span approach as defined by Baltes (1997; Baltes & Goulet, 1970; Baltes, Reese, & Nesselroade, 1988) consists of a family of proposals that attempts to describe the patterning of growth, stability, and change in behavior throughout the entire life course. The emphasis is on understanding the general principles of development and change at all ages, interindividual differences in change trajectories, and the modifiability (plasticity) of development and aging. This three-component emphasis on questions about development and aging (communalities, interindividual differences, and intraindividual plasticity) is a core feature that distinguishes the life-span approach.

Because of the complexity and plasticity of the conditions shaping the course of human development, the general approach of life-span theorists has always been (a) to highlight the pluralistic and dynamic nature of contextual influences on individual change, and (b) to consider individual development itself as a changing phenomenon. With regard to the first issue, life-span theorists are in agreement with life-course theorists. Thinking about the changing individual interacting with a changing world is more unique to the life-span perspective.

**Individual Differences in Functioning**

Many life-span researchers emerge from the research tradition of exploring individual differences in social relationships (e.g., social support), cognitive ability (e.g., intelligence), and disposition (e.g., personality), and the intricate ways that these individual characteristics shape the life-span development of the person. Further, they highlight the importance of examining individual differences in intraindividual change. The focus on individual differences
serves to highlight the heterogeneity of functioning within age and social groups. Indeed, in some instances there is greater variation within groups than between groups. Whereas much research on health inequalities focuses on group differences in pathological versus nonpathological groups, a life span perspective points to the importance of individual differences within each of these categories. We often neglect to examine the range of normal healthy functioning or the potential to optimize health. In addition, within pathological functioning there are also well-known individual differences in the range and progression of disease (e.g., in dementia, diabetes, and cardiovascular disease).

Adaptivity, Plasticity and Resilience

Life-span development is adaptation by definition. Adaptation includes an evolving balance of gains and losses across the life course. An important adaptive task across the life span is the allocation of resources to address functions of growth, maintenance, and regulation of loss (Baltes, Lindenberger, & Staudinger, 2005). This dynamic between gains and losses is moderated by the interaction between biological and cultural resources and strategies of self-regulation (e.g., life management strategies of selection, optimization, and compensation). Baltes has noted that while the role of culture increases with age, current cultural infrastructure lacks the appropriate support mechanisms to promote successful development into late life. As individuals age, they move from using their capacities for growth to using their capacities for maintaining the skills that they have acquired, as well as the prevention of loss of those skills or specific efforts to recover things that have been lost. However, lifelong development encompasses not only advances in adaptivity but also presents challenges and even losses of adaptive capacity across the life span. Individual differences influence the capacity to adapt to their life circumstances. In addition, people in different social groups may be exposed to and be required to adapt to different life circumstances.

Plasticity refers to within-person variability (Gollin, 1981; Lerner, 1984; 2002). Such variability is an indication of the individual’s potential for different levels of functioning or development. Physiological systems that adjust our heart rate depending on energy expenditure and temperature sensitivity in relation to environment changes exemplify this notion (for other examples see Bornstein & Suess, 1998). In some psychological domains (e.g., self and personality) the capacity to adapt to a changing environment implies resilience, another exemplification of intraindividual variability (flexibility; e.g., Eizenman, Nesselroade, Featherman, & Rowe, 1997; Nesselroade, 1991). In other domains (e.g., cognitive functioning), interest lies in determining an
individual’s potential (or reserve capacity) to learn new things or increase the level or speed of performance. The concept of plasticity (and possible changes in the range of plasticity across the life span) underlies questions about modification principles associated with optimizing behavior and development. Rowe and Kahn (1987) have argued that successful aging “is a generalized capacity to respond with resilience to challenges from one’s mind, body, and environment.” Because old age is a stage of increased psychosocial stressors, such as the death of loved ones, the onset of physical health declines, and increased chronic and disabling diseases, it may be the case that certain forms of adversity become more normative in old age. Old age presents more challenges than other stages of the life span; plasticity and resilience in late life addresses the ability to compensate for age-related losses. It is likely that plasticity and resilience are influenced by and influence accumulated life inequalities.

LIFE-COURSE AND LIFE-SPAN THEMES
Though life-course and life-span research have developed across distinct trajectories, there are research topics in which these two theoretical frameworks have overlapped. Both life-course and life-span perspectives make important contributions to the understanding of interdependencies or links between the lives of individuals within society and differential pathways and trajectories of aging. Linked Lives and differential pathways and trajectories of aging are examined within the context of individual and group differences.

Linked Lives
The principle of linked lives refers to the interconnectedness of individuals as they develop and adapt. Human lives are lived interdependently and sociohistorical influences are expressed through a network of shared relationships and exchanges of social support (Antonucci, 2001; Elder, 1998; Smith & Christakis 2008). According to life-course theory the social context affects individuals both directly and indirectly. This indirect route is by way of social relations and interconnectedness between individuals. Sociohistorical influences may be experienced by one family member but indirectly affect other family members. For example, women who fought for women’s rights during the Feminist Movement may transmit influences of this historical event to their children, despite the fact that their children did not experience the sociohistorical event firsthand. One family member’s tragedy or triumph (e.g., terminal illness, job promotion) fundamentally influences other members of the family. Similarly, living in a family with one child or 10 children, or with a developmentally
disabled child, influences all members of that family. Empirical investigations of the effects of linked lives are relatively recent, but reflect increasing sophistication in methodological and analytical strategies, such as dyadic dependent statistical models (Roberts, Smith, Jackson, & Edmonds, 2009).

The convoy model of social relations (Antonucci, 1985; Kahn & Antonucci, 1980) offers a life-course perspective on the role of linked lives in development and aging. The convoy model is grounded within a life-span perspective recognizing that these relations are both individual and cumulative and that they reflect a lifetime of experiences and exchanges. Family and inter-generational relations are conceptualized as longitudinal in nature, shaped by personal (e.g., age, gender, personality) and situational (e.g., role expectations, resources, demands) characteristics. One can think of personal characteristics as representative of the life-span perspective’s focus on the individual and situational characteristics as representative of the life-course perspective’s focus on the broader context. Both influence the structure and exchange of social support that, in turn, can buffer the effects of stress and influence health and well-being. The positive support families provide accumulates over time, can help an individual feel competent to cope with stress, succeed in achieving multiple goals, and face the challenges of life. For the aging process, the convoy model highlights the influential nature of the interconnectedness of individuals. It is not only individual factors or the broader contextual factors that predict aging, but also the direct interactions and reciprocal influence between individuals in families with linked life trajectories. These linked lives can be positive or negative promoting optimal aging or accumulating inequalities.

Differential Pathways and Trajectories of Aging
Both life-course and life-span researchers use longitudinal data to examine hypotheses about different patterns of change over time associated with the effects of biogenetic, life history, social, and personal factors. While researchers from a life-course perspective typically examine subgroup differences in social pathways of aging, those from a life-span perspective typically focus on individual differences in trajectories of intraindividual change. This distinction is an overgeneralization: in fact, proponents from both perspectives use the terms trajectories and pathways. Nevertheless, it serves to highlight the reasons for different questions, statistical methods and selection of predictors of age-related change. The examples described below illustrate this point.

When life-course researchers consider trajectories of aging, they embed the trajectories in social pathways defined by social institutions (e.g., subgroups with different levels of education or socioeconomic status) and relationships that provide social support (e.g., family). Life-course trajectories are charted by
linking a sequence of events, states, or transitions across successive years (e.g., the states of employment, marriage, disability, cognitive status, and health). Questions about cohort differences in patterns of trajectories (e.g., trends in disability or transition to retirement) are prevalent in life-course research.

Life-span researchers, on the other hand, generally consider trajectories at the level of the individual and model developmental changes in behavior and functioning over time. The subsequent categorization of trajectory types might be based on a standard measure of individual differences (e.g., intelligence, personality) or functional status at baseline. Frequently, researchers characterize trajectories post hoc regarding whether they reflect pathological, normative, or successful patterns of aging (e.g., Rowe & Kahn, 1987; Smith & Baltes, 1997). Life-span researchers are also particularly interested in determining whether trajectories of change in a functional domain are age- and/or death-related (terminal decline) and whether different types of trajectories (e.g., stability vs. change) are observed in different life phases (e.g., the young old vs. oldest old). For example, theories of terminal decline suggest that multiple domains of psychological functioning show incremental negative trajectories that are larger and qualitatively different from normal age-related changes in behavior, especially during a window of 5 to 7 years before death in very old age. Birren and Cunningham (1985; Berg, 1996) suggested that terminal decline may represent the emergence of a cascade of structural change. Examination of this phenomenon is important because it opens a window on different emergent mechanisms that may underlie change in function (e.g., ones not necessarily related to early-life factors.)

The two perspectives are also characterized by different sets of questions about change linked to aging. Whereas the life-course perspective poses questions about levels of subgroup disparities in trajectories of aging (e.g., the social gradient of health or mortality), the life-span perspective asks questions about the distribution of interindividual differences in the level, rate (slope), and profile of developmental change trajectories.

Both perspectives ask whether the range of disparities and distribution of functioning observed in a sample expands or contracts across the life course. The various positions on these questions reflect different lenses on the forces of heterogeneity across the life course. One position argues that early adult life is a phase when within-cohort heterogeneity and social pathways expand greatly and that the consequences of this expansion are maintained for the rest of life. Young adulthood, for example, is a life phase that stimulates the initiation of a wide range of life-course trajectories in terms of education, work, family, and health behaviors (e.g., Elder, 1998). Gender is also associated with different life-long careers and life conditions in old age (Moen, 1996; Smith & Baltes, 1998).
Humans are very susceptible to influence in their early years, but with age are thought to become increasingly stable in important respects. Furthermore, the social and cultural opportunities for change linked to the life course generally decline with age.

A second position on the distribution of social disparities and interindividual differences suggests that heterogeneity may increase with age (e.g., Dannefer, 1988). The combined effects of an individual’s unique experiences over more years should magnify differences between them. Genetically based differences would also have had more time to be expressed and to contribute to divergence. Moreover, older adults, somewhat freer from social constraints, might be more likely to select their own course of action.

Counter to these two positions, however, are proposals regarding reduced heterogeneity with age, especially among the oldest old. Selective mortality contributes to a corresponding reduction in observed heterogeneity, at least for those factors and aspects of functioning that predict mortality (Vaupel et al., 1998). We turn next to a consideration of a selection of contemporary evidence informed by these perspectives.

CUMULATIVE EQUALITIES AND DISPARITIES ON WELL-BEING AND HEALTH
Effects of Social Class, Racial, and Ethnic Minority Aging
Numerous studies over the past few decades have indicated that individuals of lower socioeconomic status have worse health than individuals of higher socioeconomic status (e.g., Adler, Boyce, Chesney, Folkman, & Syme, 1993; Marmot, Shipley, & Rose, 1984; Preston & Taubman, 1994). Findings show evidence of this effect of socioeconomic status (SES) at all ages of the life course, and interestingly enough suggest that there are age-graded group differences in that individuals of low SES are more likely to have health problems at younger ages than individuals of higher SES (House et al., 1994). This research suggests that inequalities in health status by SES vary systematically across the life course. This life-course variation is particularly salient in old age; House and colleagues (2005) have shown that the compression of morbidity is specific to higher SES groups while lower SES groups are more likely to experience multiple health problems earlier in old age.

Though it was originally suggested that these health disparities were due to a lack of access to proper medical care, investigations have indicated that the causes are much more complicated and significantly influenced by the individual’s resources and other environmental factors (Adler et al., 1993;
Marmot et al., 1984; Pappas, Queen, Hadden, & Fisher, 1993). Furthermore, this health disparity is not merely a case of the “haves” versus the “have-nots” but rather there is a social gradient effect at all levels of SES and even in the face of universal access to health care and despite access to sufficient resources, increasing social status remains related to better health (Marmot, 2006). Group differences in SES are due to complex contextual effects leading to differing life-course trajectories of health and sharply divergent life expectancies. While there is strong evidence for the social gradient effect in health disparities, the challenge to current and future research is in determining the causes of these inequalities. In effect, the divergence in social capital accrued over the life course has significant implications (Frytak, Harley, & Finch, 2003). The life-course approach to aging suggests that it is imperative to investigate the implications of cumulative lifelong influences on development in old age. Promoting better health in old age will not be as simple as providing lower SES individuals with adequate health care access, but rather necessitates interventions in public, family life, and individual life styles, and is best initiated at earlier rather than later stages of the life course.

It is widely recognized that many ethnic minorities live in a culture of prejudice and discrimination that both influences the psychological resources available to them as well as their physical and mental health (cf. Jackson, Antonucci, & Gibson, 1990). The life-course perspective notes that the effects of discrimination across the life course may differ in form and intensity as a function of birth cohort and timing (Williams & Williams-Morris, 2000). A number of additional factors may contribute to these disparities, ranging from biological dispositions (Baquet & Ringen, 1987) to dietary habits (Hargreaves, Baquet, & Gamshadzahi, 1989), to a failure to receive adequate health care (Jones & Rice, 1987). The specific mechanisms, however, that produce these differential outcomes are less clear (LaVeist, 2000; Williams, 1999; for an exception, see recent work of Jackson, Knight, & Rafferty, 2009.).

Aging research on ethnic minorities also addresses contextual experiences that may be unique to some ethnic groups. Research on aging immigrants indicates that in addition to the challenges faced by ethnic minorities, this group also experiences strains related to the migration experience (such as language barriers, for example; Angel & Angel, 2006). Interestingly enough, researchers have noted an unlikely effect termed the Hispanic Paradox in which the longer Latino immigrants reside in the United States, the worse off their health becomes (Markides & Eschbach, 2005) indicating the importance of examining the interaction of context and time along with the contribution of biology. The utility of a life-course perspective is further noted in considering that because of inadequate access to resources and/or
sociohistorical experiences of war or political unrest in their native countries, many immigrants may bring with them a life-course path that has a significant impact on the aging process.

When considering group differences, it is critical to recognize the role that race, ethnicity, and culture play over the life course and particularly for the aging experience (Jackson & Govia, 2008). Longstanding ethnic diversity, as well as recent immigration patterns, indicates that special attention needs to be paid to these differences. Group level differences related to ethnicity and race are evident in the aging process, and indicate the need for a perspective that integrates biopsychosocial influences across the life course. As society becomes increasingly diverse, a culturally sensitive approach to aging (e.g., health, self, commuting issues) will be even more critical (Jackson, Brown, & Antonucci, 2005).

**Effect of Linked Lives**

The influence of linked lives on health in old age is impressive and should be considered when addressing health disparities in late life. Specific family relationships have been shown to have differing effects on health and well-being. Married people report better overall physical health, lower levels of depression, better social support, and relationship quality compared to unmarried adults (Murphy, Glaser, & Grundy, 1997; Umberson & Williams, 1999). As a group, married adults are more active, suffer lower rates of chronic illness, and are less likely to engage in risky health behaviors compared to unmarried groups of adults (Lyyra, Törmäkangas, Read, Rantanen, & Berg, 2006; Mendes de Leon, Appels, Otten, & Schouten, 1992). They report lower levels of depression, stress, and loneliness and greater life satisfaction than adults who are not married (Diener, Suh, Lucas, & Smith, 1999; Dykstra & de Jong Gierveld, 2004). Conversely, adults who are divorced and widowed report more mental health issues, including depression, loneliness, and suicidal ideation, compared to married and never-married adults (Dykstra, 1995; Williams, 2003). Among adults who have never married, men experience higher levels of loneliness compared to unmarried women, although no such gender differences emerge among married adults (Dykstra, 1995; Peters & Liefbroer, 1997). However, longitudinal studies of these associations suggest that distress and negative psychological assessments subside or are ameliorated over time (Booth & Amato, 1990).

Intergenerational relationships, especially the parent–child relationship, is one of the most long-term and emotion-laden social ties (Bowlby, 1980; Cairns, 1977; Fingerman, 2001). Gerontologists have suggested that offspring experience both increased feelings of autonomy and closeness toward parents
across adulthood (Fingerman, 2001). Across the life span, the parent–child tie is characterized by a paradox of solidarity and conflict (Fingerman, 2001; Luescher & Pillemer, 1998). Interpersonal problems in this tie appear to be normative (Clarke, Preston, Raksn, & Bengtson, 1999; Fingerman, 2001; Luescher & Pillemer, 1998). Much less is known about how this family tie affects the health of either party. The parent–child relationship may directly influence health in old age on various levels such as induction of stress, caregiving, and access to resources. On some level, health disparities may be a result of the extent of resources and/or support provided through social and family relationships.

Health Over the Life Course

The benefits of studying health during old age within a life-course and life-span framework are considerable. Typically health and illness have been studied with a focus on acute illness and onset of a diagnosed illness. Studies often examine the progression of disease prospectively as opposed to the lifelong trajectory leading up to the onset of the disease. Pearlin, Lieberman, Menaghan, and Mullan (1981) proposed a now classic model describing how the experience of stress affects health and well-being. According to their stress model, individuals experience stressors that affect their health, however, moderating factors such as social relations may reduce the stressors and mediating factors, such as social support, may reduce the interaction between the stressor and health. For aging individuals then, health status is determined by the ability to mediate or moderate the relation between stressors and health. For example, stressors may be mediated by psychological and social resources that reduce the effect of the stressor on health. A life-course perspective is central in examining this link between stressors and health because it has been found that chronic stressors are more likely than acute stressors to have significant effects on health (George, 2003; Krause, 2000). The cumulative impact of prolonged chronic stress exposure and the physiological response may cause declines in overall health status over time (Robles & Kiecolt-Glaser, 2003). Older adults not only have a longer life course in which to experience chronic stress, but are also more likely to have chronic conditions that are exacerbated by stress, perhaps creating greater vulnerability to stress with age (House et al., 2005).

Because the persistence of hardships over the life course can result in cumulative damage to health and well-being, and chronic stress over the life course has significant repercussions for health in old age (Kahn & Pearlin, 2006), it is essential to examine health and aging from a life-course perspective. George (2003) suggests the importance of using the life-course approach to study risk factor trajectories and their influence on health. This approach is
not yet common, but has promising possibilities for understanding health in late life. For example, Barrett (1999) found that women who remarried after a divorce had higher depression levels than women who were continuously married, indicating the significance of not just marital status, but marital history in predicting depression. The value of longitudinal research in examining health and well-being in old age is critical. Life-course research on health now emphasizes the importance of considering historical and cohort effects. For example, the current cohort of older adults experiences relatively high rates of lung cancer, a finding that, when considered absent of the historical context, could lead researchers to interpret this as part of the aging process. In reality, however, historical context has an important influence as the current cohort of older adults came of age in the decades before the ramifications of smoking was fully understood; high rates of lung cancer are actually the result of a high rate of long-term smoking for that cohort.

Due to their living longer, older adults are more likely to have chronic diseases and experience multimorbidities of diseases (Crimmins, 2004). Health in old age is sometimes determined by rates of mortality, but more recent trends in research have focused on morbidity of disease, disability, and frailty (Fried, Ferrucci, Darer, Williamson, & Anderson, 2004). Comorbidity refers to the multiple concurrent health problems that many older adults face. Because the risk of multimorbidity increases with age, it is important to delineate the various pathways into multimorbidity and frailty in old age, especially because there is an asynchrony in the onsets of the various diseases (Yancik et al., 2007). Threats to health clearly increase over the life course and, to some extent, are related to individual lifelong experiences. They are likely to be cumulative in that risk increases with age and earlier ill-health is likely to contribute to later ill-health, and the risk is more likely to be multiplicative than additive. Evidence suggests that events, experiences, and relationships can either help offset or exacerbate vulnerabilities.

CONCLUSION

The current state of the art in research on aging requires a merger between life-course and life-span perspectives and a joint consideration of the themes in Table 1.1. While there is still much to learn about aging, much more is now known as a result of research designed from a life-span and life-course perspective than was known when these approaches were originally proposed in the mid-20th century. At the individual level, for example, we understand that biological, social, and cognitive development and change is not only or always cumulative and linear. It can also be nonlinear, dynamic, progressive and regressive, adaptive and maladaptive, usual and unusual. Initially, the
scientific field rather naively believed that once set upon a path, development unfolded in a manner that was essentially predetermined. Similarly, while life-course theorists understood that institutions, events, and historical periods influence the individual’s development, not much thought was given to how these experiences would influence the developing individual, cumulatively or interactively. The life-span and life-course perspectives were in different disciplines and researchers from the two camps rarely communicated with the other. As this book attests, this separation is a luxury we can no longer afford or justify.

As knowledge accumulates, it is increasingly evident that a combination of life-span and life-course perspectives will be most informative to the exploration health inequalities in later life. As the following chapters indicate, this approach provides a broad, clear lens on those factors influencing aging and health inequalities.

Acknowledgments

The authors gratefully acknowledge support from the MacArthur Research Network on an Aging Society.

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