A MULTI-DIMENSIONAL PERSPECTIVE OF AGEING

THE PROCESS OF DISENGAGEMENT

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A Multidimensional Perspective of Aging - The Process of Disengagement ED

ANCC Accredited NCPD Hours: 3 hrs

Target Audience: RN/APRN

Need Assessment

Due to the ageing population there is increased use of residential and nursing homes – collectively referred to as care homes – to support the growing proportion of older people with more complex care needs. The role of nursing in long-term care is underdeveloped and working with older people is viewed by students as a low status career choice with lack of opportunities for professional development. Older residents receive variable quality of end-of-life care however, the complexity of chronic and co morbid conditions among residents makes it difficult to recognize and manage the terminal phase. The challenge of improving end-of-life care in care homes is usually described in terms of inadequacies in knowledge and training among care home staff. Rather, attention should in addition focus on challenging those discriminative attitudes, beliefs and practices in the wider system that contribute to the isolation of nursing homes and enhancing the ability of homes to demonstrate leadership in practice development. There should be an insight into the complex social structural network surrounding nursing homes to enable collaboration across organizational, institutional and funding boundaries, so that patients receive a better quality of end-of-life care regardless of the care setting in which they are located.

Objectives

- Describe the concept of aging.
  Enlist the physiological factors of aging.
- Analyse various theories related to aging.
- Discuss the various disease drivers in aging.
- Identify the Elderly Rights and Violations Reporting protocol in the State of Texas.
- Recognise the Geriatric Assessment procedure and protocols
- Explain the principles and practice of Supportive Care of Elderly in Long Term Care

- Analyse the framework of Professional Nursing Practice in Long Term Care

Goal

The goal of this article is to provide a systematic review of the process of aging, institutional elderly care management and its utility in term care for management of the elderly in Texas

Introduction

About 2.1 million American citizens in Texas currently reside in long-term care facilities, defined as overnight facilities, including nursing homes and residential care communities, which provide a broad range of health care, personal care, and supportive services for adults who have limited self-care capabilities. Fifty percent of male residents and 39% of female residents reside in long-term care facilities for longer than 3 months. Yet long-term care facilities are not the first choice for older Americans; even in the event of poor health, almost all would prefer to remain at home and in their community. ***Correspondingly, recent Texas policy initiatives have begun to promote home- and community-based services that would reduce the need for long-term care facilities. To support these initiatives, research needs to identify factors that shape long-term care facility use, especially for long durations.***

Relationship status is associated with long-term care facility use, as married adults are half as likely to enter long-term care facilities as unmarried adults. Understandings of how relationship status influences entry into long-term care facilities are incomplete. Most previous studies on relationship status and long-term care facilities only compare currently married adults with currently unmarried adults, ignoring the heterogeneity within these two categories. This approach is outdated given the new demographic reality that unmarried, remarried, and partnered older adult populations are growing in Texas. ***Twenty-nine percent of married adults are in second- or higher-order marriages, and 4% of unmarried older adults are cohabiting. Additionally, more of the older adults are divorced than in the past, and widowed and divorced adults are increasingly likely to remain single. The relative increase in remarriage and non-marital partnerships and overall decrease in marriage rates may undermine sources of support at older ages.*** But as of yet, we do not fully know the implications of these relationship status trends on long-term care facility use. We should move beyond binary comparisons of ***currently married adults***

and currently unmarried adults and provide a more nuanced examination of how long-term care risk varies across six relationship status categories: continuously married, remarried, partnered, widowed, divorced, and never married to get actual statistics and causes of choosing care homes. [1, Rank 2]

Although the Health Information Technology for Economic and Clinical Health Act of 2009 produced a great deal of attention to and knowledge of the benefits of EHR (Electronic Health Record) systems, the status of EHR adoption and utilization in Texas face the barrier of lack of capital resources. More challenges and opportunities for adopting Electronic Health Records in Texas LTC (Long Term Care) facilities are faced by LTC administrators, vendors, policy makers, educators, and researchers.

The Concept of Aging

Aging is a universal process that culminates in the end. ***It is a dynamic state of existence that changes with one's perception.*** Meanings of old age are based on societal views of ageing, cultural beliefs about the meaning of being old and values associated with old age

The concept of 'Successful Aging' has long intrigued the scientific community. Despite this long-standing interest, a consensus definition has proven to be a difficult task, due to the inherent challenge involved in defining such a complex, multi-dimensional phenomenon. The lack of a clear set of defining characteristics for the construct of successful aging has made comparison of findings across studies difficult and has limited advances in aging research. ***The domain in which consensus on markers of successful aging is furthest developed is the domain of physical functioning. For example, walking speed appears to be an excellent surrogate marker of overall health and predicts the maintenance of physical independence, a cornerstone of successful aging.*** The purpose of the present article is to provide an overview and discussion of specific health conditions, behavioral factors, and biological mechanisms that mark declining mobility and physical function and promising interventions to counter these effects. ***With life expectancy continuing to increase in the United States and developed countries throughout the world, there is an increasing public health focus on the maintenance of physical independence among all older adults. [2, Rank 5]***

Many of the initial definitions of successful aging were in line with the biomedical model, which conceptualizes

health, and by extension successful aging, largely based on the absence of chronic disease conditions and reduction in risk factors for disease. Within this model, individuals are typically classified into distinct dichotomous categories of healthy or diseased, such that successful aging is represented by good health, independence, and high levels of cognitive and physical functioning. The role of lifestyle and/or psychosocial factors in contributing to good or poor health, however, is not recognized by this model. ***Due to the increasing recognition of the complex interplay among biological, psychological, and social factors in affecting an individual's health status and disease risk, a new model for understanding the development of disease, termed the biopsychosocial model, was proposed in the 1970s.*** As applied to the construct of successful aging, this model views an individual's health and functional status later in life not as a dichotomous classification of healthy or diseased but rather as occurring along a spectrum across multiple dimensions

Consistent with the biopsychosocial approach, biological and psychosocial concepts have been successfully integrated in Texas in many recent models of s uccessful aging. For example, Rowe and Kahn's model of successful aging, one of the most widely accepted and applied models views "better than average" aging as a combination of three components: avoiding disease and disability, high cognitive and physical function, and engagement with life. Recent models continue to support the multidimensional nature of this construct and have incorporated both objective and subjective dimensions in their definitions of successful aging. For example, have proposed a two-factor model of successful aging, which incorporates both objective criteria (i.e., functional abilities, pain, and diagnosed health conditions) and subjective criteria (i.e., perceptions of quality of life and successful aging) [12, Rank 4]

Definitions

Geriatrics is the branch of health science concerned with the study and treatment of problems and diseases associated with ageing. It is the study of diseases in old age

Ageing is a process of deterioration of body systems. Ageing is defined as the total of all changes that occur in a person with the passing of time

Ageism is the term used for prejudice about older people. Prejudice may be obvious or subtle. It fosters a stereotype that does not allow older adults to be viewed realistically

Gerontology is the specialised study of the process of growing old. It is a multi-disciplinary applied science that can be examined from several perspectives; myths and fold wisdom, efforts to prolong life, demographics and scientific enquiry. It is the science dealing with ageing process.

It refers to the study of all aspects of the ageing process, including economic, social, clinical and psychological factors and their efforts on the older adults and on society. It is a broad multidisciplinary practice and gerontologic nursing concentrates on promoting the health and maximum functioning of older adults

Gerontological nursing is the specialty of nursing concerned with assessment of the health and functional status of older adults, planning and implementing health care and services to meet the identified needs and evaluating the effectiveness of such care. It is the nursing of older adults.

Gerontic Nursing is defined as the health service for aged. Geriatric care is related to disease process of old age and it aims at keeping old persons in a state of self-dependence as far as possible and to provide facilities to improve their quality of life.

Physiology of Aging

The gero-science hypothesis, that aging is the major modifiable risk factor for most chronic diseases, is currently well accepted and it is being tested in multiple models and systems, ranging from basic biology in a variety of organisms to preclinical and clinical studies. ***Aging has been recognized for years as a major risk factor for most chronic diseases that affect the aged population.*** However, ***it has traditionally been overlooked as a non-modifiable risk factor, and thus neglected in most of our approaches to medicine. This has changed recently because of the recognition,*** among basic biology of aging researchers, of a limited number of pillars that seem to be the main drivers of the aging process. ***Identification of these pillars was made possible by a multi-pronged approach based on the now classical tenets of aging biology: caloric restriction, cell senescence, and free radicals.*** While ***the initial theories and concepts driving each of these fields have been subjected to modifications and redefinitions,*** research based on these tenets has allowed researchers to identify the major drivers of the process. This in turn has led to the beginnings of efforts aimed at translating the findings through the use of

pharmacological approaches aimed at one or more of the pillars of aging, with the hope that, by addressing these fundamental drivers, a positive impact might be achieved in combating not one but multiple chronic diseases in parallel. [15, Rank 2]

Physiological factors of Aging

The Physiology of aging is dependent on the physiological factors (as shown in Figure 1)

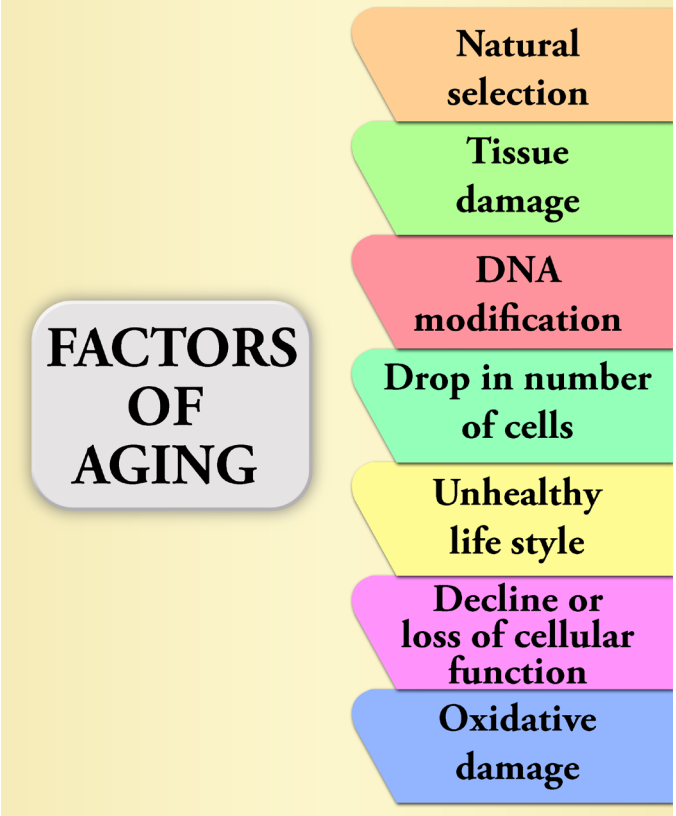

Figure 1: Physiological factors of Aging

It is well established that aging and disease susceptibility are highly variable among individuals within the human population, most likely due to variations in the well-known interactions between genes and environment. Against this background, a major environmental variable known epidemiologically to affect the "rate of aging" (colloquially understood, as there is no agreed-upon definition or measure for therate of aging) is exposure to early serious disease. It has been well established, at the epidemiological level, that early exposure to severe diseases and/or their treatments leads to an acceleration of aging, as defined by an increased and premature risk of developing diseases and conditions that are associated with increased age. In order to narrow the discussion, in the Second Geroscience Summit, in New York, New York, researchers focused on three examples: cancer, HIV/AIDS, and diabetes. This was driven simply by the need to limit the scope of the discussions, but it is expected that the issues raised will apply, with modifications, to all or most diseases that, while curable, nevertheless leave sequalae that are likely to affect later increased susceptibility to age-related diseases and conditions.

That ***serious diseases and/ or their treatments lead to an acceleration of disease susceptibility later in life is well established at the epidemiological level. The goal of the summit was to dig further***

and try to assess possible molecular and cellular mechanisms that might be responsible for the epidemiological observations. A specific emphasis was placed on links between diseases and/or treatment and the major pillars of aging, with the assumption that if these early life events affect some of the same pillars that have been associated with aging, then this should be a good place to start addressing the relationship between the two. [36, Rank 5]

Theorizing Social Gerontology in United States

Various theories of Aging

Theories state that to understand the evolution of ageing, we have to understand the environment-dependent balance between the advantages and disadvantages of extended lifespan in the process of spreading genes. The researchers have developed a fitness-based framework in which they categorise existing theories into four basic types (as shown in Figure 2)

1. The Programmed Theory

It considers ageing to be the result of a sequential switching on and off of certain genes, with senescence being defined as the time when age-associated deficits are manifested.

2. Endocrine Theory

The biological clocks act through hormones to control the pace of ageing.

3. Immunological Theory

It states that the immune system is programmed to decline over time, leading to an increased vulnerability to infectious disease and thus ageing and death.

4. Wear and tear theory

The parts in our cells and tissues wear out resulting in ageing.

5. Rate of living theory

It states that the greater an organism's rate of oxygen and basal metabolism the shorter its life span

6. Cross-linking theory

According to this theory an accumulation of cross-linked proteins damages cells and tissues, slowing down bodily processes and thus result in ageing.

7. Free radicals theory

It proposes that superoxide and other free radicals cause damage to the macromolecular components of the cell, giving rise to accumulated damage causing cells, and eventually organs, to stop functioning.

8. Disengagement Theory

Refers to an inevitable process in which many of the relationships between a person and other members of society are severed & those remaining are altered in quality. As people age they experience

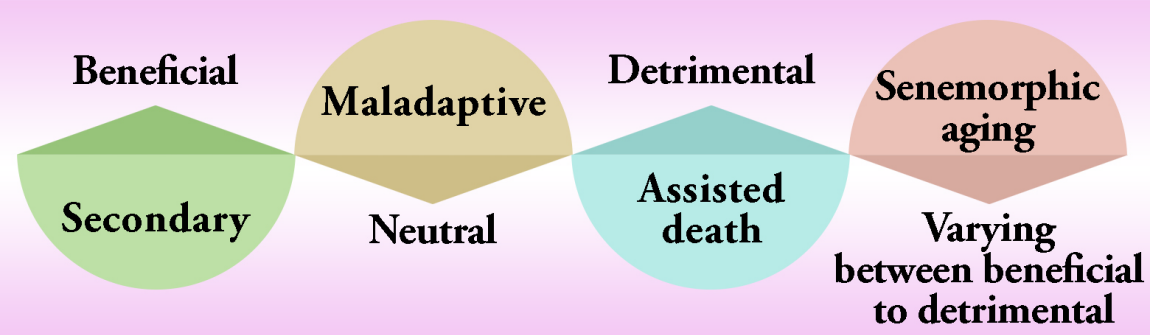

Figure 2: Theories of Aging: Categories

greater distance from society & they develop new types of relationships with society.

In America there is evidence that society forces withdrawal on older people whether or not they want it. Some suggest that this theory does not consider the large number of older people who do not withdraw from society.

9.Activity Theory

It describes the psychosocial ageing process and emphasises the importance of ongoing social activity. This theory suggests that a person's self-concept is related to the roles held by that person i.e. retiring may not be so harmful if the person actively maintains other roles, such as familial roles, recreational roles, volunteer & community roles. To maintain a positive sense of self the person must substitute new roles for those that are lost because of age. And studies show that the type of activity does matter, just as it does with younger people.

10. The Neuroendocrine Theory

This theory elaborates on wear and tear by focusing on the neuroendocrine system. The hypothalamus controls various chain-reactions to instruct other organs and glands to release their hormones etc. The hypothalamus also responds to the body hormone levels as a guide to the overall hormonal activity. But as we grow older the hypothalamus loses it precision regulatory ability and the receptors which uptake individual hormones become less sensitive to them. Accordingly, as we age the secretion of many hormones declines and their effectiveness is also reduced due to the receptors down-grading

11. The Free Radical Theory

The term free radical describes any molecule that has a free electron, and this property makes it react with healthy molecules in a destructive way. Because the free radical molecule has an extra electron it creates an extra negative charge. This unbalanced energy makes the free radical bind itself to another balanced molecule as it tries to steal electrons. In so doing, the balanced molecule becomes unbalanced and thus a free radical itself.

12. The Membrane Theory of Aging

According to this theory it is the age-related changes of the cell's ability to transfer chemicals, heat and electrical processes that impair it. As we grow older the cell membrane becomes fewer lipids and this impedes its efficiency to conduct normal function and in particular there is a toxic accumulation

13. The Mitochondrial Decline Theory

The mitochondria are the power producing organelles found in every cell of every organ. Their primary job is to create Adenosine Triphosphate (ATP) and they do so in the various energy cycles that involves nutrients. Enhancement and protection of the mitochondria is an essential part of preventing and slowing aging.

14. The Cross-Linking Theory

The Cross-Linking Theory of Aging is also referred to as the Glycosylation Theory of Aging. In this theory it is the binding of glucose to protein, which causes various problems. Once this binding has occurred the protein becomes impaired and is unable to perform as efficiently.

The three most common hypotheses on the relationship between longevity and health have also been formulated.

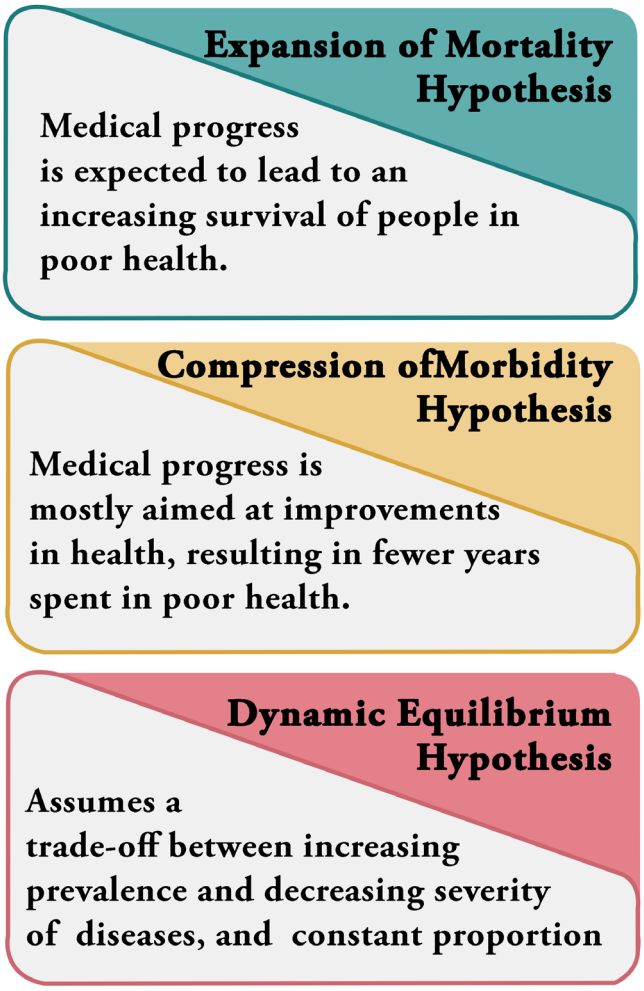

Figure 3: Hypotheses on life longevity and health

An Overview of Current Trends in Texas

In most Western countries, life expectancy has increased by about 30 years during the last century. Almost all studies foresee a further increase of life expectancy in the coming decades, e.g. In Texas, life expectancy at birth was 78.8 for men and 82.7 for women in 2010. A further, almost linear, increase is predicted, resulting in a life expectancy at birth of 83.8 for men and 88.1 for women by 2050.

The forecast for remaining life expectancy at 65 is 21.1 years for men and 24.6 years for women, compared to 16.7 and 20.1 years, respectively, in 2006. [18, Rank 2]

The relationship between health and longevity depends on the dimension of health under consideration. Here, we discuss evidence on trends in chronic diseases, disability, and lifestyle among elderly population in Texas. ***The prevalence of chronic diseases is rising in most countries, because the survival of people with one or more chronic diseases is growing.*** The rising trend in chronic diseases might partly be the result of improved medical treatments of some fatal conditions that do not change the age-specific onset of those conditions. In the US, a decline in life expectancy without chronic diseases from 53 to 48 years for men and 52 to 43 years for women between 1983 and 2007 due to an increase in chronic conditions has been observed. [22, Rank 5]

Evidence on trends in functioning and disability is mixed, sometimes even between different studies in the same country. In the U.S., a number of studies have found improvements in functioning and a decline of disability in the 1980s and 1990s. A study for twelve OECD (The Organisation for Economic Co-operation and Development) countries, specifically on severe disability, finds that five countries, including the US, show a decline in severe disability, but a same number of countries show an increasing trend. Another study reports evidence for several countries that the expected number of years spent with severe disability is declining or stable, while the number of years spent with moderate disability is increasing. This trend is also observed for the US. A meta study using results from five surveys also finds evidence for this trend, but shows mixed findings between surveys. It seems that severe disability is strongly linked to the last phase of life, whereas mild disability is not, implying that an expansion of life expectancy increases life years spent with mild disability, but years spent with severe disability remain stable. [55, Rank 1]

Attitude towards Aging

The following are 12 myths related to growing older. (as shown in Figure 4)

The "Myths of Aging" activity involves questions and answers whose main strategy is to demystify the stereotypes surrounding aging. In this context, the population modify the way they imagine and see aging, which can result in a change in views on elderly. With regard to empathy, no significant differences were evident, despite

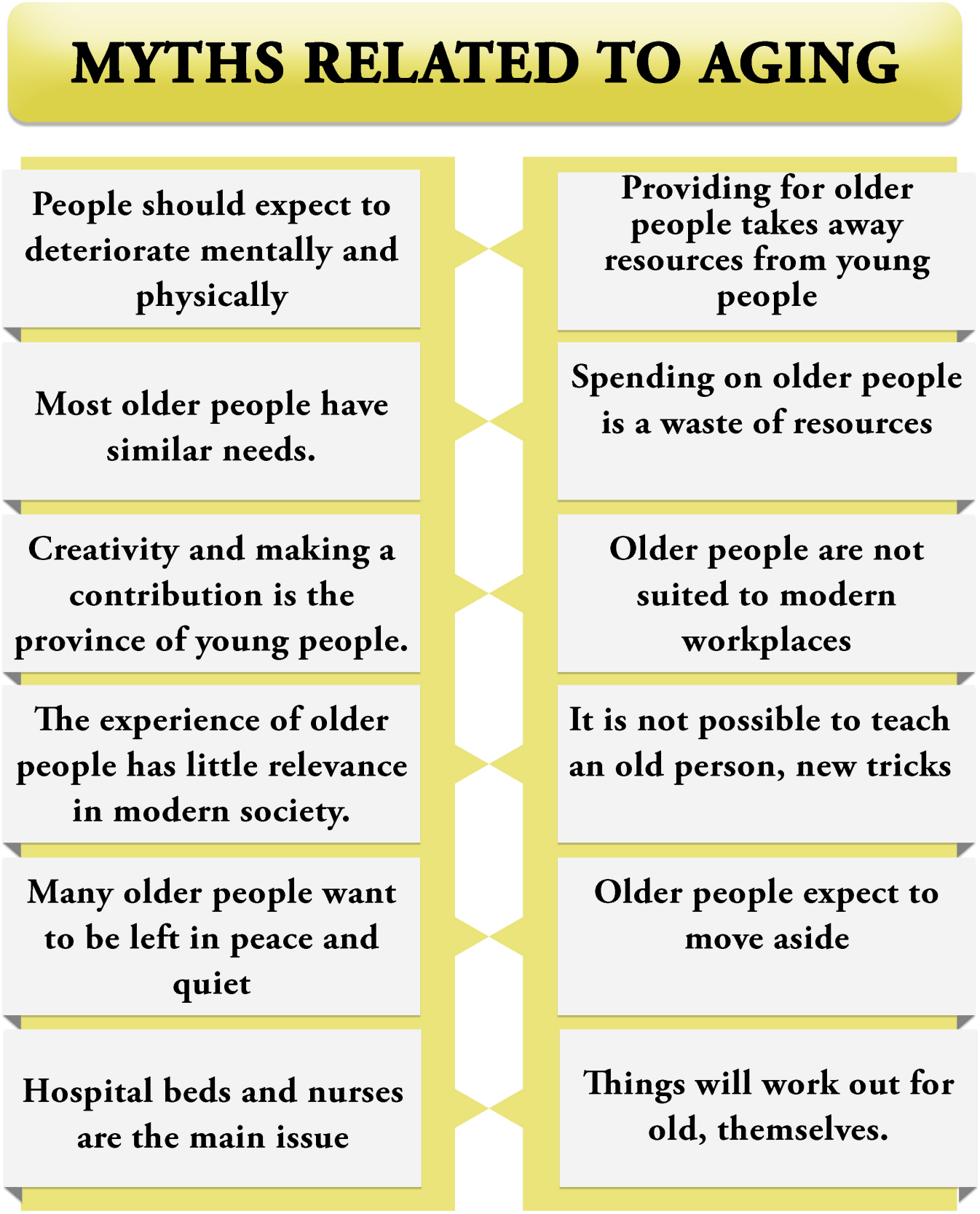

Figure 4: Myths related to Aging

a tendency toward improvement. With regard to knowledge, an increase in the number of right answers to the facts on aging was noted. Cognitive knowledge however, showed no changes, a situation which might be explained by the fact that this type of knowledge was not the focus.

These results contribute further evidence to this field of teaching. Despite the numerous studies addressing educational strategies for teaching geriatrics, results remain mixed and conflicting, where some systematic reviews have shown promising results whereas others have not. One important finding revealed by the present study was the fact that teaching, can lead to mixed results, highlighting that strategies must be assessed and evidence-based. [50, Rank 3]

Although a subject not extensively discussed in health education, other interventions in the gerontology area have also reported worsening attitudes, some assessed using the Experiencing Aging activity -aging game. All these ***studies found a worsening attitude towards older adults and suggest that exposure of students to only the unhealthy side of aging experiencing limitations or exposure to chronic patients can reinforce stereotypes of aging.*** [66, Rank 2]

Based on this discussion, it is clear that strategies can have different effects on, depending on when they are introduced, on the profile and the manner in which they are implemented. Thus, educators must establish the optimal strategy for meeting learning goals. In this context, some may argue that having a positive attitude towards older adults without seeing things from the perspective of the elderly (i.e. empathy), could not have a strong influence on future professional practice and then develop the attitude. We believe this reflection must be made and, in our opinion, perhaps a strategy combining the two workshops, demystifying the myths first and subsequently experiencing aging, may potentialize attitudes and empathy early in medical training. [22, Rank 4]

The study provided only a snapshot assessment. It is unclear whether these results will persist over the long term. Also, this was an intervention-based, non-randomized study with a control group. Although constituting a limitation, this type of study is widely conducted in the area of medical education on the student population. ***There was a significant difference among groups concerning age and gender.*** The reasons for these differences are not clear, since the admittance criteria were the same through the years and the number of spots remained stable.

Types of Anticoagulants

Aging is recognized as the major risk factor for most chronic diseases and disabilities. However, there is still a widespread perception that aging is immutable, and thus both research and clinical trials often focus on curing or preventing specific diseases rather than addressing the core: aging itself. Against this background, ***researchers have made impressive progress in the last few decades in understanding the genetics, biology, and physiology of aging,*** using a veritable zoo of laboratory animals to model human aging. This has made possible the emergence of the field of geroscience, the intersection between basic aging biology and disease. ***Age related problems include life-threatening diseases, such as cancer, vascular disease, diabetes, and many others, as well as chronic diseases (arthritis, osteoporosis, mild cognitive impairment) and conditions (frailty, loss of resilience, fatigability) that, while not life threatening them, nevertheless severely diminish quality of life.***

The trans-NIH Geroscience Interest Group was formed with the goal of promoting awareness and discussion on these issues. A major activity of the Geroscience Interest Group has been the summits. The first Geroscience Summit, in October 2013,

> **"The aims of geroscience are to understand the molecular and cellular basis of how aging enables disease and to exploit that knowledge. Indeed, the geroscience hypothesis states that, by reducing the rate of aging, it should be possible to delay or slow down the appearance and progression of not one but most age-related chronic ailments, all at once."**

focused on exploring the molecular and cellular mechanisms underlying aging as the major risk factor for all chronic diseases. Seven major pillars of aging were identified at that time, and the door was left open for additional pillars not yet identified. One such underexplored pillar could be the appearance of early major diseases and their treatment, which has been shown in epidemiological studies to lead to premature or accelerated appearance of age-specific traits, including chronic morbidity. As a result, a second Geroscience Summit was co-organized by the Geroscience Interest Group in conjunction with the American Federation for Aging Research, the Genetics Society of America, and the New York Academy of Sciences. The meeting was held in April 2016, and it was decided to address whether the molecular and cellular mechanisms that

might explain why some diseases accelerate the aging process, leading to premature appearance of age-related diseases and conditions. The fact that there is such acceleration has been demonstrated extensively in the literature, and therefore further discussion of epidemiological data confirming these results was discouraged. Rather, as in the first summit, the emphasis was on molecular and cellular events occurring as a function of the disease or its treatment that might impinge on the rate of functional deterioration that occurs during normal aging. In an effort to narrow the discussions, three diseases were chosen: HIV/AIDS, diabetes, and cancer. Both the effects of the diseases themselves and the effects of their treatments were discussed by panelists in three separate sessions, as well as a roundtable discussion at the end, focused on identifying open research questions that need to be addressed to advance our understanding of how these diseases might affect the aging process. [12, Rank 2]

While the summit focused separately on the three chosen diseases, it is acknowledged that people of advanced age are rarely affected by a single chronic disease; rather, they are often afflicted by multiple comorbidities and conditions that limit their health. However, during the discussions, the focus was primarily on early appearance of the diseases in relatively young people. In those cases, cancer, HIV/AIDS, and diabetes are often found to occur alone, and the initial disease is often addressed vigorously. This has led to important increases in survival and extended life span in affected individuals. However, comorbidities are observed later, as the patient's age, and the summit addressed the downstream consequences, in relation to decreased health span—the portion of life spent in good health.

The progressive deterioration of physiological function over time, aging occurs even in the absence of disease, as shown by the steady decline in performance even of the world's best master athletes as they grow older. However, aging is intimately associated with a wide range of diseases—virtually all the fatal diseases of modern life—because it increases vulnerability to, and compromises the ability to recover from, diseases. Whether diseases themselves can accelerate aging is a hypothesis many researchers are currently considering.

Neuronal changes

It is important to remember that nonfatal maladies of aging, such as increased joint pain, loss of vision and hearing, and muscle weakness, should not be neglected, as they have become

particularly important in recent times. As successful as the biomedical community has become at delaying death, shown by the steady rise of life expectancy for well over a century, it has not been successful at delaying aging itself. ***Consequently, the number of people needing joint replacement due to chronic pain, cataract surgery due to low vision, or assistance in the simple activities of daily living has steadily risen as well.*** These chronic fatal and non-fatal maladies of later life have now become the number one threat to human health globally. [14, Rank 4]

Sensory and Motor Dysfunctions in Aging

With advancing age, we may notice ourselves walking a little more slowly, or having a bit of difficulty navigating our environment; or hearing less well; or not sensing the ambient aroma as acutely. Often we think of these sensory or motor changes as signs of aging; rarely do we think of them as early signs of Alzheimer's disease (AD). For AD research, the defining phenotypic impairment is progressive loss of cognitive function, which we often consider as the first function to be lost in patients. However, clinical research has led to the recognition that changes in sensory and motor systems are present in many people at the early stages of Alzheimer's disease In particular, several longitudinal studies indicate that changes in olfaction, hearing, and even walking speed may precede the onset of cognitive impairments and dementia by 5–15 years, and are strong risk factors for Alzheimer's disease dementia. [70, Rank 3]

These clinical findings, together with the recognition that Alzheimer's disease pathology develops over many years, raise the exciting possibility that specific sensory or motor changes may be early non-invasive biomarkers for Alzheimer's disease; or even more provocatively, that treating these sensory or motor symptoms may help to prevent or treat Alzheimer's disease dementia. While attempts have been made to explore these possibilities, it has quickly become obvious that current clinical measures of sensory or motor changes are not specific to Alzheimer's disease. For instance, people may develop these sensory or motor impairments in association with other types of neurologic disorders, such as ***Parkinson's disease (PD) or distinct non-Alzheimer types of dementia; or they may be caused by non-neurologic impairments of the nose, eye, ear, or muscles.*** In fact, the majority of older adults with sensory or motor impairments do not seem to exhibit progression to the cognitive symptoms of Alzheimer's disease. Neither do all Alzheimer's disease patients begin with some or any

of these sensory or motor changes. Consequently, the significance of these sensory or motor dysfunctions for the pathogenesis and diagnosis of Alzheimer's disease has remained largely elusive, if not often controversial. To unravel the relationships between age-related sensory and motor dysfunctions and Alzheimer's disease and harness their potential, new ideas, perspectives, and investigations are in order.

Neurological Diseases

The canonical Alzheimer's disease pathology of neuronal loss in the setting of amyloid plaques and neurofibrillary tangles (NFT) afflicts many components of the olfactory neural system. Accumulation of neurofibrillary tangles in the entorhinal cortex is an early site of Alzheimer's disease pathology and correlates best with the initial appearance of the cognitive symptoms in Alzheimer's disease. The olfactory pathway is the most direct path between the entorhinal/hippocampal region and the external environment, i.e., olfactory epithelium (OE). Even though the entorhinal areas receive direct connections from the olfactory bulb, relatively little is known about the mechanisms underlying the entorhinal-mediated olfactory processing and whether the presence of Alzheimer's disease pathology in entorhinal regions directly affects olfactory function. However, a significant relationship has been demonstrated between odor identification and a composite measure of plaques and tangles in multiple brain areas implicated in Alzheimer's disease, including the entorhinal cortex (EC), in a cohort of individuals who died without cognitive impairment, and between odor identification and volume loss on quantitative MRI in the right amygdala and bilateral entorhinal and perirhinal cortices. Together, these results suggest that olfactory function may reflect incipient pathology before individuals show clinical evidence of Alzheimer's disease.

In the olfactory bulbs of many patients diagnosed with probable Alzheimer's disease or MCI, and in the olfactory bulbs of some cognitively normal older adults neuropil threads and neurofibrillary tangles' have been found. In addition, the frequencies of tau deposits in the olfactory bulbs and the entorhinal cortex were highly correlated, indicating that both neuropil threads and neurofibrillary tangles appear in the olfactory system as early as they do in the entorhinal cortex. While a recent animal model study reported the correlation of olfactory dysfunction with amyloid-β burden in olfactory bulbs and piriform cortex, further research is needed to establish the relationship between the appearance of Alzheimer's disease pathology in the

> **"Alzheimer's disease pathology correlates with the presence of Alzheimer's disease brain pathology. Accumulations of neuropil threads and neurofibrillary tangles' have been found in the olfactory bulbs (OBs) of patients diagnosed with definite Alzheimer's disease."**

olfactory neural network and olfactory function in humans. As we gain more insight into the physiology of the processing olfactory input from the olfactory bulb to cortical regions, it will be important to investigate the mechanisms by which Alzheimer's disease pathology may influence the structure and function of the olfactory neural network, in particular, during the preclinical stages of Alzheimer's disease .

In the olfactory epithelium, both amyloid-β and tauopathies have been shown to be highly enriched in postmortem tissues of individuals diagnosed with Alzheimer's disease in comparison to cognitively normal older adults or young subjects; and the presence of olfactory epithelium. Like the entorhinal cortex and olfactory bulbs Alzheimer's disease pathology can also be found in the olfactory epithelium of a small fraction Alzheimer's disease action of the cognitively normal older adults. Until the advent of amyloid imaging and the unmasking of amyloid plaques in up to 30% of individuals with normal cognition, this lack of complete correlation between the presence of Alzheimer's disease pathologies in olfactory epithelium and clinical diagnosis of Alzheimer's disease dementia had diminished the interest and effort of further diagnostic and mechanistic research in the past two decades. In light of the introduction of the "preclinical" stage for Alzheimer's disease , future research is warranted to assess whether Alzheimer's disease pathologies in the olfactory epithelium in cognitively normal older adults is also indicative of the preclinical stage of Alzheimer's disease and whether pathological expression of amyloid-β may contribute to olfactory neuron loss and olfactory impairment. The accessibility of olfactory epithelium for biopsy, despite its recognized limitation, has potential value for pathological and mechanistic studies. Further studies are needed to determine whether molecular markers can specifically differentiate Alzheimer's disease from Parkinsons disease or other types of pathological processes among individuals with olfactory dysfunction will be of particular value. [44, Rank 2]

In summary, ***Alzheimer's disease pathology can be found at every level of the neural pathway processing olfactory information, and Alzheimer's disease pathology is associated with impaired***

odor identification. Moreover, Alzheimer's disease pathology is found in the olfactory neural network of cognitively normal older adults. However, little is known about the impact of Alzheimer's disease pathology on the function of cells in the olfactory pathway. Further research to define the relationships between Alzheimer's disease pathology and olfactory function in cognitively normal subjects will determine whether olfactory dysfunction may be a functional marker of the preclinical stage of Alzheimer's disease and will facilitate the development of the next generation of olfactory tests to increase the sensitivity and specificity of olfactory testing for predicting the progression of Alzheimer's disease.

Sleep Duration and Mortality

There is a particular need to analyse the association between sleep duration and health outcomes in the elderly population. Sleep physiology undergoes significant changes across the lifespan and the distributions of sleep duration vary with age. Sleep disorders, including sleep apnoea, insomnia and periodic limb movement disorders, are prevalent in older individuals; each may impact sleep quality and duration. Numerous health problems prevalent in the elderly may also influence sleep duration or may influence physiological responses to altered

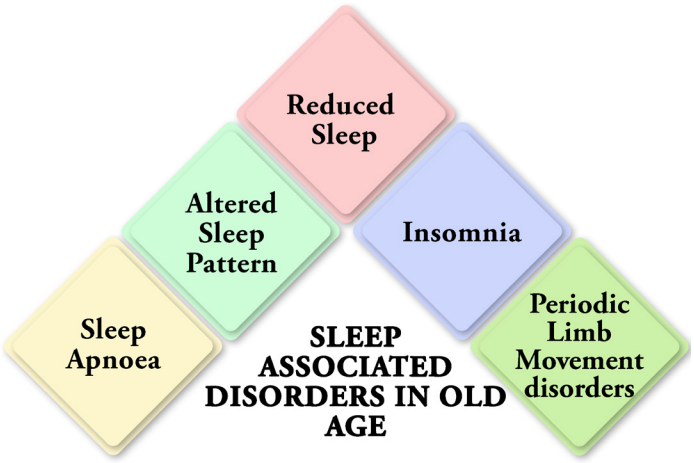

Figure 5: Sleep associated problems in Elderly

sleep. For these reasons, the relationship between sleep duration and mortality may differ for older compared with middle-aged and younger adults.

Studies conducted in young individuals have identified a U-shaped relationship between sleep duration and all-cause mortality. The association was weaker for short in comparison to long sleep duration. A meta-analysis conducted among adults and the elderly population showed an increased risk of dying for both short and long sleep duration. For short sleep duration, the magnitude of the effect was greater than the observed risk in this meta-analysis, but for long sleep duration the risk was similar. Our findings are in accordance with such studies, including similar estimates regarding the association of long sleep duration and cardiovascular mortality in the adult population. It has been postulated that the adverse health outcomes associated with prolonged sleep might be a consequence of

underlying diseases, frailty and worse health status, or be a part of the dying process. In addition, an increase in sleep duration that occurs during the last few weeks or months of life might be a consequence of the disease and not its cause. [41, Rank 1]

Memory, learning and intelligence

The effect of normal ageing on memory may result from the subtly changing environment within the brain. The brain's volume peaks at the early 20s and it declines gradually for rest of the life. In the 40s, the cortex starts to shrink and people start noticing the subtle changes in their ability to remember or to do more than one task at a time. Other key areas like neurons shrink or undergo atrophy and a large reduction in the extensiveness of connections among neurons (dendritic loss) is also noticed. During normal ageing, blood flow in the brain decreases and gets less efficient at recruiting different areas into operations. The whole group of changes taking place in the brain with ageing decreases the efficiency of cell-to-cell communication, which declines the ability to retrieve and learn. It also affects the intelligence, especially fluid intelligence, problem-solving skills etc. declines rapidly after adolescence. Perceptual motor skills decline with age. [199]

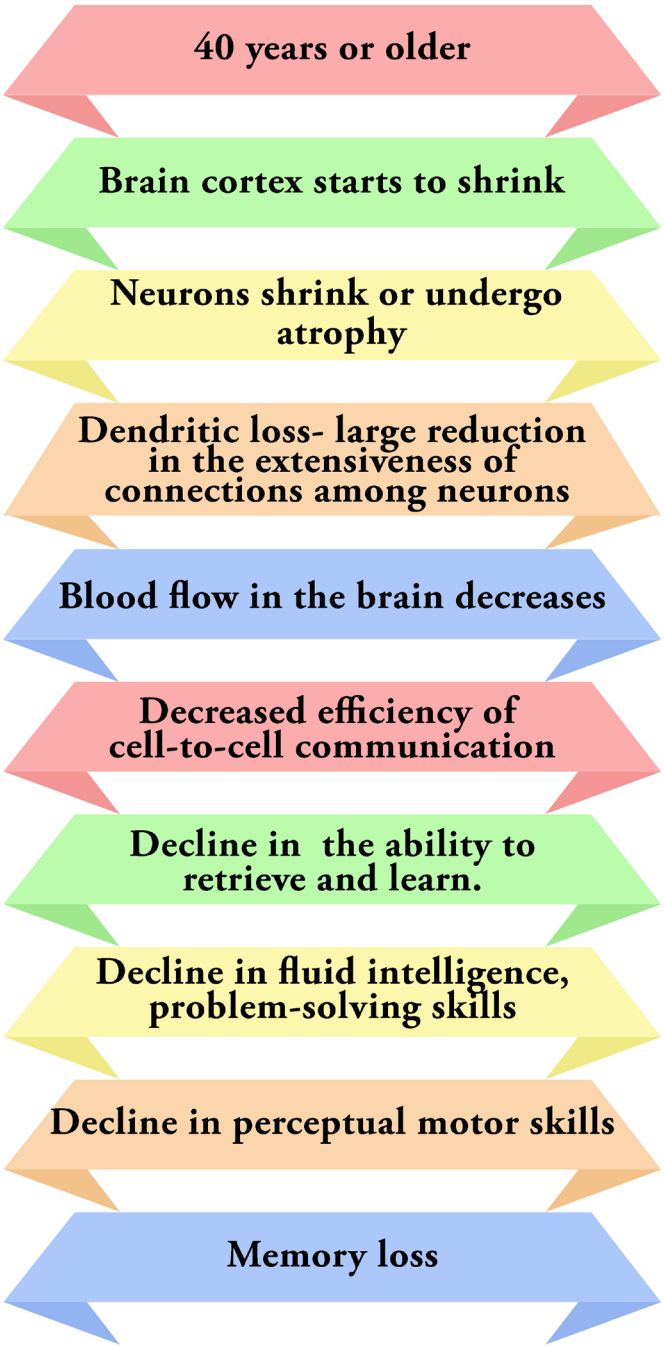

Figure 6: Sequalae of memory loss in Old age

Cardiorespiratory changes

Cardiac output decreases linearly after the third decade at a rate of about 1 percent per year in normal subjects otherwise free of cardiac disease. Due to the small

decrease in surface area with age the cardiac index falls at a slightly slower rate of 0.79 percent per year. ***The cardiac output of an 80-year-old subject is approximately half that of a 20-year-old.***

A progressive increase in blood pressure after the first decade of life has long been regarded as a normal consequence of aging and was the basis for ignoring the presence of hypertension in the elderly. The elevation with age is more pronounced for systolic than diastolic pressure. When hypertension is defined as a systolic blood pressure of greater than 160 mm of mercury and simultaneously a diastolic of greater than 95 mm of mercury

The Framingham Study clearly established that high blood pressure is a significant risk factor for stroke, coronary artery disease and congestive heart failure. More recently the Hypertension Detection and Follow-up Program confirmed these findings and showed. All of these studies, as well as the European Working Party on High Blood Pressure in the Elderly, have shown that blood pressure in the elderly can be safely lowered when the antihypertensive therapy is chosen carefully and monitored regularly.

- Decreased inotropic response to catecholamines, both endogenous and exogenous in senescent cardiac muscle
- Decreased response to cardiac glycosides
- Increase in diastolic and systolic myocardial stiffness due to increased interstitial fibrosis in the myocardium
- Progressive stiffening of arteries with age, particularly of the thoracic aorta, leading to an increased afterload
- Amyloid deposits in the myocardium, predominantly in the atria
- Conduction defects due to amyloid in the ventricles and vessels
- Cardiac failure and increased risk for arrhythmias

Figure 7: Sequalae of Cardio vascular changes in old age

Atherosclerotic changes in elderly

Thickening of the walls of arteries with hyperplasia of the intima, collagenisation of the media and accumulation of

calcium andphosphate in elastic fibres progressively occurs with aging. In addition, the lipid content of non-atherosclerotic portions of vessels increases, particularly of cholesterol. Although none of these age-related changes has definitely been shown to be a precursor of arteriosclerosis, atherosclerosis clearly increases with aging. Raised fibrous plaques that contain lipid, atheromas, of the abdominal aorta increase linearly from onset at about age 20 to reach approximately 30 percent by -age 70. In general, atherosclerosis occurs earlier in the aorta and carotid arteries than in the coronary and cerebral arteries and peripheral vascular disease appears later. ***Myocardial infarction from coronary artery disease increases dramatically with age and although many risk factors are known, age itself is probably the most significant.*** Prevention at present is aimed at amelioration of the other factors, such as hypertension, obesity and cigarette smoking.

Changes in Respiratory system

Changes occur in lung volume, flow rate and gas exchange. ***Elderly patients have a pronounced increase in incidence of pneumonia, both bacterial and viral, compared with younger persons.*** Although much of this may be due to a general depression of immune system function, other more specific factors may play a role. Pneumonia generally results from aspiration of oropharyngeal secretions. The normal mechanical clearing of the tracheobronchial tree by the mucociliary apparatus is significantly slower in non-smoking older persons than in their younger counterparts.

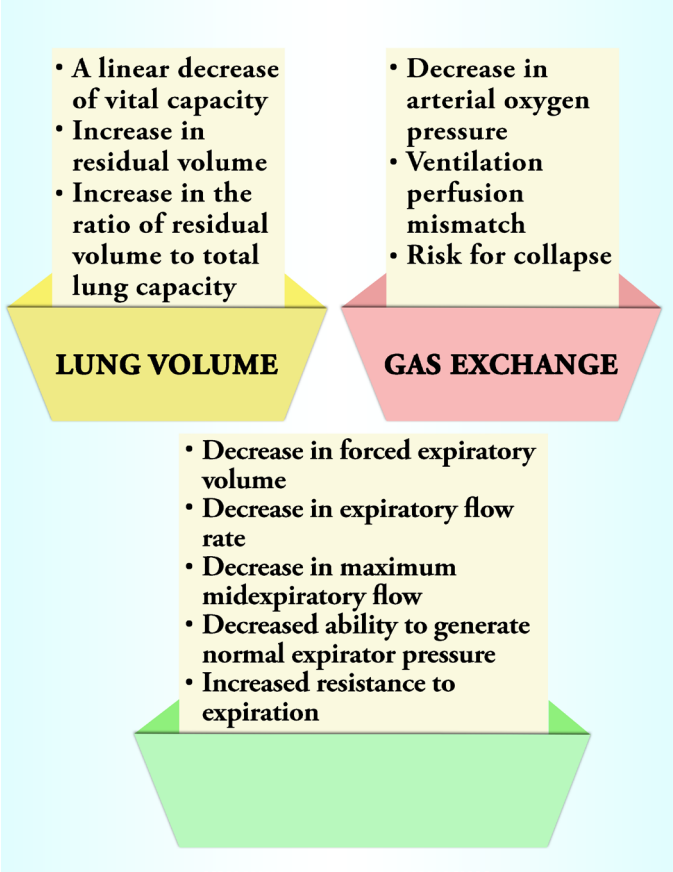

Figure 8: Changes in Respiratory system in Old age

Musculoskeletal changes

Normal ageing is characterised by a decrease in bone and muscle mass and an increase in adiposity. A decline in muscle mass and a reduction in muscle strength

lead to risk of fractures, frailty, reduction in the quality of life and loss of independence. These changes in musculoskeletal system reflect the ageing process as well as consequences of a reduced physical activity. ***The muscle wasting in frail older persons is termed 'sarcopaenia'.*** This disorder leads to a higher incidence of falls and fractures and a functional decline. Functional sarcopaenia or age-related musculoskeletal changes affect 7% of elderly above the age of 70 years, and the rate of deterioration increases with time, affecting over 20% of the elderly by the age of 80.

However, studies show that on an average, men have larger amounts of muscle mass and a shorter survival than women. This makes sarcopaenia potentially a greater public health concern among women than among men. Skeletal muscle strength or force-generating capacity also gets reduced with ageing depending upon genetic, dietary and, environmental factors as well as lifestyle choices. This reduction in muscle strength causes problems in physical mobility and activity of daily living. ***The total amount of muscle fibres is decreased due to a depressed productive capacity of cells to produce protein.*** Wear and tear or wasting of the protective cartilage of joints occurs. The cartilage normally acts as a shock absorber and a gliding agent that prevents the friction injuries of the bone. There are stiffening and fibrosis of connective tissue elements that reduce the range of motion and affect the movements by making them less efficient. As part of the normal cell division process, telomere shortening occurs. DNA is more exposed to chemicals, toxins and waste products produced in the body. This whole process increases the vulnerability of cells.

> **"With ageing, toxins and chemicals build up within the body and tissues. As a whole, this damages the integrity of muscle cells. Physical activity also decreases with age, due to a change in lifestyle."**

Somehow, the physiological changes of the muscles are aggravated by age-related neurological changes. Most of the muscular activities become less efficient and less responsive with ageing as a result of a decrease in the nervous activity and nerve conduction.

A study was done by Williams et al., who evaluated the muscle samples from both elderly and young adults and suggested that limb muscles are 25–35% shorter and less responsive in elderly healthy individuals when compared to young adults. In addition, the overall fat content of muscles was also higher in elderly population,

suggesting transformation in the normal remodelling with age. Age-related musculo-skeletal changes are much more prominent in fast-twitch muscle fibres as compared to slow-twitch muscle fibres. [200, Rank 4]

Obesity

As per World Health Organisation (WHO), globally, approximately 2.3 billion elderly people are overweight and more than 700 million elderly people are obese. Most elderly belonging to the middle and high socio-economic groups are prone to obesity and complications related to obesity, due to sedentary lifestyles and a reduced physical mobility. Obesity is considered as one of the major risk factors and in elderly, obesity contributes to the early onset of chronic morbidities and functional impairments which lead to premature mortality.

Over the past years, obesity among elderly was considered as a problem only in high-income countries, but the trend is changing now; excess weight, as well as obesity, is dramatically increasing in low-income and middle-income countries as well, particularly in urban settings. Various studies show a significant change in the mean body weight, physical activity and diet along with progressive economic development in developing countries. Possibilities are high that obesity and its co-morbidities will continue to affect an increasing number of populations in these regions. Lifestyle and environmental factors are acting in a synergistic manner to fuel the obesity epidemic. As per WHO estimates, there is a decline in undernourished population across the world, whereas the over-nourished population has increased to 1.2 billion. A WHO report shows that more than 1 billion elderly are overweight and 300 million are obese. The problem of obesity is increasing in the developing world with more than 115 million people suffering from obesity-related problems. The obesity rate has increased threefold or more since 1980 in the Middle East, the Pacific Islands and India. However, the prevalence of obesity is not as high in all developing countries, like China and some African nations.

> **"With ageing, the total water content of the tissue decreases and loss of hydration also adds to the inelasticity and stiffness. Alterations in the basal metabolic rate and slowing metabolism result in muscle changes. This leads to the replacement of proteins with fatty tissue that makes muscle less efficient."**

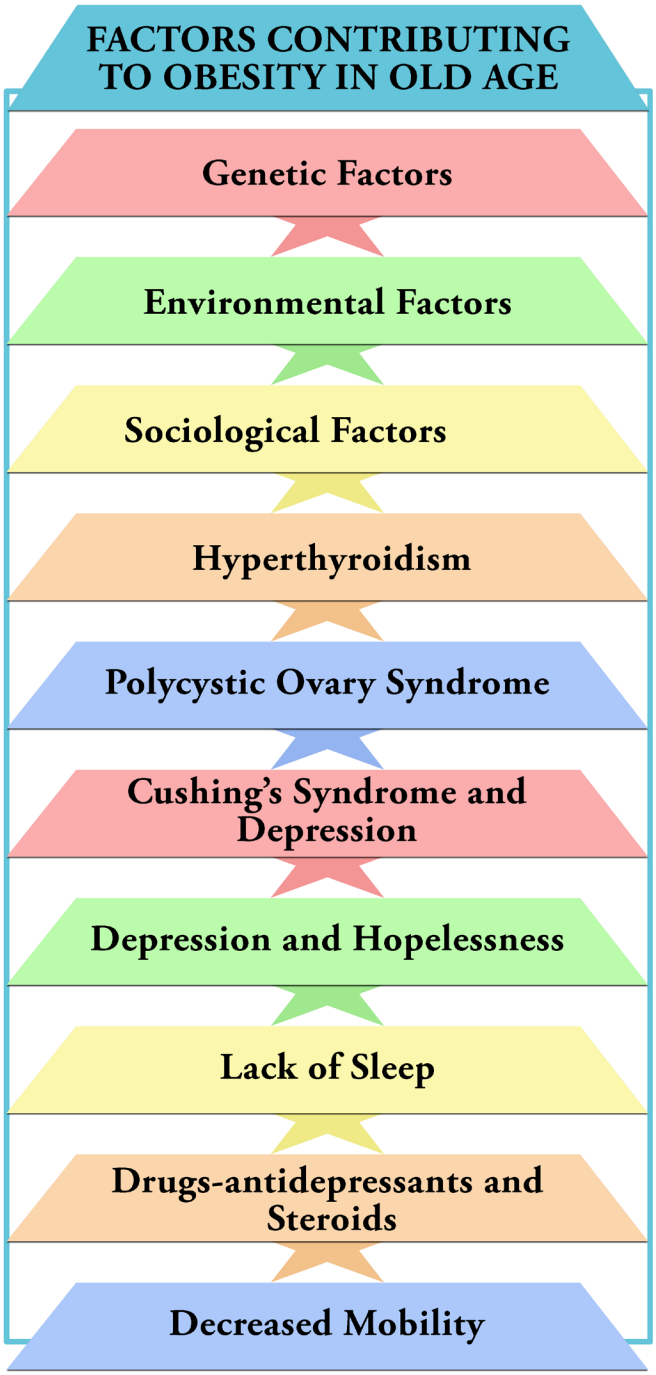

Figure 9: Factors of obesity

Overweight or obesity may not be a specific disease but it is certainly considered as a major contributory factor leading to various degenerative diseases in adult life. Prevention and control of this problem must, therefore, claim priority attention. Various studies indicate that how much we eat does not decline with advancing age; therefore, it is likely that a decrease in energy expenditure particularly in the beginning of old age (50–65 years) contributes to the increase in body fat as we age

Psychological changes

Stressors among elderly

Stressors that tend to affect elderly are the loss of a loved one; too much unstructured time on your hands; a change in relationships with children; or a loss of physical abilities, such as vision, hearing, balance, or mobility.

The adaptive physiological response to acute stress involves a process, initially referred to as allostasis, in which the internal milieu varies to meet perceived and anticipated demand. This definition was extended to include the concept of a set point that changes because of the process of maintaining homeostasis.

Acute stress is known to negatively affect neuroendocrine function via hypothalamic-pituitary- adrenal axis. When stimulated this feedback loop results in the secretion sustained during chronic stress of glucocorticoids such as cortisol, enabling, and the organism to perform with a heightened sense of alertness.

Figure 10: Common stressors in elderly

Depression and Suicide Risk in Elderly

Older adults have high rates of suicide, necessitating focused clinical risk assessment and intervention. Older adults are amenable to and respond well to psychological interventions; however, only one trial of psychotherapy to date has been conducted exclusively targeting suicidal older adults. Researchers specifically conducted a small focused trial of Interpersonal Psychotherapy (IPT) adapted for older adults at-risk for suicide by virtue of expression of current suicide ideation, death ideation, or recent self-injury. ***Preliminary findings suggested that this intervention is feasible, tolerable, and safe, and has a positive impact on therapeutic change.*** Significant reductions were observed in suicide ideation, death ideation, and depressive symptom severity. ***We now extend and expand upon these preliminary findings by reporting complete study findings on primary suicide ideation and death ideation and secondary depressive symptom severity outcomes and therapeutic process variables working alliance and treatment satisfaction across pre- to post-treatment assessments, and investigating the stability of change over a 6-month follow-up period.***

We have adapted Interpersonal Psychotherapy for the treatment of at-risk older adults, given empirical findings supporting its efficacy as an active or maintenance treatment for depression and in enhancing social adjustment among older adults, negative findings notwithstanding. Findings from a secondary analysis of data from three treatment studies of late-life depression in mental healthcare settings, and from the multi-site PROSPECT study demonstrated significant reduction or resolution of suicide ideation with standard Interpersonal Psychotherapy and/or antidepressants. Resolution of suicide ideation

> "The neuroendocrine system, autonomic nervous system, and immune system are mediators of adaptation to challenges of daily life, referred to as allostasis, meaning "maintaining stability through change." Aging process can undermine the process of maintaining homeostasis by invoking changes in the endocrine, autonomic, and immune systems."

was slower and treatment less effective for individuals with a history of suicidal behavior or more severe suicide ideation, necessitating adaptation of Interpersonal Psychotherapy for at-risk individuals. [52, Rank 5]

Interpersonal Psychotherapy is a conceptually relevant intervention for suicidal older adults, given the salience of interpersonal problems, perceived social support deficits, and difficulty adjusting to life transitions in the onset, exacerbation, and potential resolution of suicide risk in later life. Theory and research suggest that attention to suicide risk factors may be insufficient to identify and intervene effectively with at-risk individuals. Following the call for a complementary focus on resiliency, we demonstrated that older adults expressing greater perceived meaning in life and life satisfaction reported significantly less suicide ideation. The positive effect of meaning in life was most robust at higher levels of depressive symptom severity. Interpersonal Psychotherapy problem areas regarding death, losses, and transitions are consistent with existential concerns that may engender perceptions of meaninglessness. We thus adapted Interpersonal Psychotherapy from existing treatment manuals incorporating lessons learned from reports of suicide during psychotherapy, by making suicide a central focus of clinical discourse and incorporating safety precautions and on-going surveillance of suicide risk and resiliency factors, including meaning in life and additional psychological well-being variables. [69, Rank 3]

Elderly living with HIV

Elderly Individuals living with HIV are subject to a high stressor burden. This burden includes the influence of external stressors, such as financial burden and stigma, as well as the burden of the internal stressors of viral presence and antiretroviral medication. Evidence of the burden of these stressors is evident in the increased incidence of stress-related disorders among individuals living with HIV, such as depression and posttraumatic stress disorder.

Furthermore, comorbidity of affective disorders with HIV affects overall longevity, as demonstrated by the report that women living with depression and HIV have higher mortality than euthymic women living with HIV.

In order to understand how stressors and HIV may interact in older adults, it is important to visualize the relationship between stress and stressors. An organism's response to a stressor is the physiological state of stress, and stress is designed to return the organism to homeostasis. Similar to a rubber band being stretched, the relationship between stressors and stress is initially completely predictable and reversible. The force (stressor) is applied, and the stress response of the organism returns the system to homeostasis—the relationship is elastic or resilient. However, if the stressors are too great, the elasticity of the system begins to be compromised such that the force applied does not predictably generate the same response and the return to homeostasis may be incomplete or require shifts in function—the relationship is adaptable. If stressors are applied to an extreme point for a prolonged period of time, or if a genetic or environmental predisposition exists, then the response generated becomes maladaptive. In the case of HIV, it is likely that the combined stressor burden shifts the relationship between stressors and the stress response to the point that a resilient response is less likely and adaptation is a more realistic goal for stress management.

The stress response can be managed at both the psychosocial and biological levels. Regardless of whether the origin of the stressor is psychosocial or biological, the initiated processes in the organism are virtually identical—that is, the hypothalamic–pituitary–adrenal (HPA) axis that facilitates the stress response does not differentiate between types of stressors. At the psychosocial level, interventions that reduce the impact of stressors, such as stigma, loss, or financial strain, can in part minimize the impact of HIV on the stress response system by preventing the initiation of a stress response. The biological response to stressors is also affected by HIV. This level of modulation has two primary points of intervention or titration: magnitude and duration. In relation to magnitude, both the cumulative burden of psychosocial stressors and the impact of viral proteins have been shown to alter the stress response. [18, Rank 5]

Although the impact of HIV on the stress response is multifaceted, there are also multiple points of intervention. Psychosocial interventions are useful and important in the context of HIV. However, it is

valuable to note that the stress-response system of individuals living with HIV is different than those without the disease, and it may be necessary to consider biological support for the hypothalamic–pituitary–adrenal axis in order to allow the patient to reap the full benefits of a psychosocial intervention. In addition, it is vital to recognize that, while antiretroviral therapy is effective in reducing viral loads and restoring CD4 counts, these drugs are not without impact, and the influence of these compounds on P450 and other aspects of the stress response system can render patients more susceptible to the impact of stressors. Finally, given the ubiquitous nature of stress hormones, targeted end-organ interventions for the systems most affected in an individual demonstrating the repercussions of a cumulative stressor burden may be the most effective method of intervention for individuals aging with HIV. [23, Rank 3]

Rights of the Elderly - Texas State

State law provides special rights and protections for elderly individuals, including anyone 60 and over. Section 102.003 of the Texas Human Resources Code explains these rights.

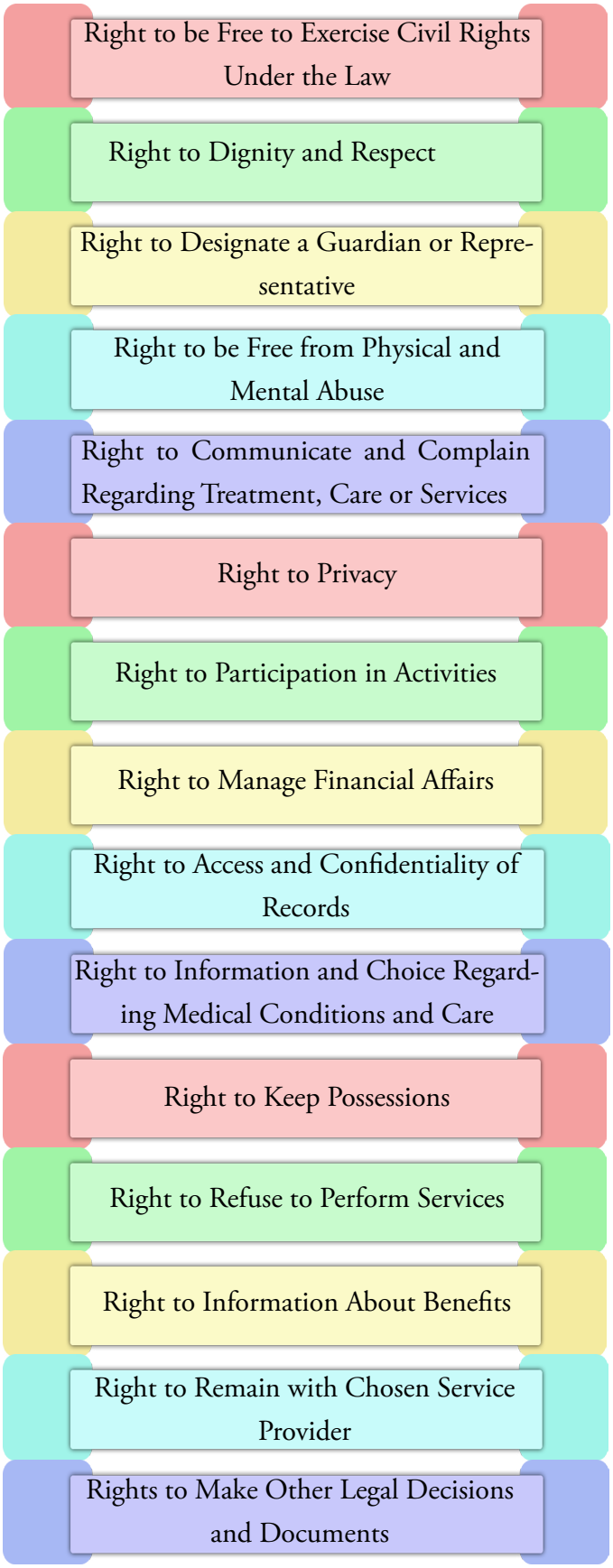

Figure 11: Rights of the Elderly

The elderly have the same civil rights as other adults under U.S. and Texas laws, except where lawfully restricted. An elderly person has the right to be treated with dignity and respect, without regard to race, religion, nationality, sex, age, disability, marital status, or source of payment. This means that the elderly person has the right to: Make his or her own choices about personal affairs, care, benefits, and services, and be free from abuse, neglect, and exploitation. The elderly have the right to be free of both physical and mental abuse. Physical abuse includes corporal punishment, as well as physical or chemical restraints used to "discipline" a person, or used for the convenience of a person providing services.

This right is sometimes violated by nursing homes. A nursing home must have an effective procedure for receiving complaints from elderly people and for responding to those complaints. If a person complains about poor care, or if a family member speaks up about poor conditions at a facility, it is a violation of this law for the nursing home, or any of its employees, to intimidate or retaliate in any way against the resident or the family.

An elderly person is entitled to privacy while attending to personal needs and a private place for receiving visitors or associating with other people, unless providing privacy would infringe on the rights of other people.

No one has the right to restrict visits to an elderly person, nor force an elderly person to receive a visitor he or she does not wish to see.

An elderly person may manage his or her own personal financial affairs, or may authorize another person to do so in writing. The elderly individual may choose the manner in which his or her money is managed by another person, and may choose the least restrictive of methods, such as- a money management program, a representative payee program, a financial power of attorney, or a trust or similar method.

An elderly person is entitled to access his or her own personal and clinical records. These records are confidential and may not be released without permission, except to another person providing services at the time the elderly individual is transferred; or if required by another law. Elderly individuals have the right to understand and participate in their treatment plans, by being fully informed by their service provider, in understandable language, of his or her total medical condition and any significant changes.

An elderly person may keep and use his or her personal possessions, including

clothing and furnishings, as space permits. The number of personal possessions may be limited for the health and safety of other people.

An elderly individual may refuse to perform services for their service provider. An elderly person may make a living will by executing a directive under the Advance Directives Act and execute a medical power of attorney under the Advance Directives Act or designate a guardian in advance of need to make decisions regarding the person's health care should the person become incapacitated.

STATUS OF VICTIM	PLACE TO REPORT
In nursing home or assisted living facility, or is in his or her home and relies on a home health provider	Texas Department of State Health Services
Resident of a long-term care facility that receives Medicaid funding	Attorney General's Medicaid Fraud Control Unit
Abuse of a senior who is not in a health care facility	Adult Protective Services
Retaliation or reprisal occurring because of complaints or reporting of problems,	Adult protective services

Table 1: Reporting protocol in Texas

Special programs for elderly in Texas

Texas Health and Human Services provides a range of services for older Texans that help ensure their well-being, dignity and choice. Programs also are in place to support family caregivers. Some programs, such as those provided by local area agencies on aging, are available to everyone who is 60 or older.

Experienced HHS staff and paid contractors can help ***eligible older Texans access services that:***

- ***Create opportunities to live independently in their own homes.***
- ***Provide information about state and federal benefits and legal rights***
- ***Give family caregivers the tools to do their job.***
- ***Provide access to meals at home or in group settings.***
- ***Identify assisted-living facility care, daytime programs or nursing home services they may qualify for.***
- ***Advocate for people who live in assisted-living facilities or nursing homes.***
- ***Guide people to the right long-term care services***

> "Restraints are only permitted in very specific circumstances, such as when authorized by a doctor, in case of emergency, or in certain circumstances when the court-appointed guardian of a person with an intellectual disability has given informed consent."

Federal Programs for Older Texans

Eligible older Texans may qualify for federal and state programs that pay benefits, pay health care costs or provide food. Medicaid provides health coverage to eligible low-income adults, children, pregnant women, and people who are older or who have disabilities. Each state has its own rules about who's eligible, and what Medicaid covers. Some people qualify for both Medicare and Medicaid. Medicare is health insurance program for people age 65 or older. People younger than age 65 with certain disabilities or permanent kidney failure can also qualify for Medicare. The program helps with the cost of health care, but it doesn't cover all medical expenses or the cost of most long-term care.

Social Security

Pays a monthly benefit to older Americans, workers who become disabled, and families in which a spouse or parent dies. ***Supplemental Security Income (SSI)*** ***pays monthly benefits to people with limited income and resources who are disabled, blind, or age 65 or older.***

Challenges and Opportunities of Old age

Theories for Successful Aging

As the mid-1980s approached, the progress of gerontology began to stall perhaps due to a preoccupation with disease, disability, and chronological age. It was in this environment that the MacArthur Network on Successful Aging was launched in 1984, led by Jack Rowe, a physician, and Robert Kahn, a psychologist, along with a group of 16 scientists from a wide range of backgrounds sought to clarify the factors that promote "positive" aging. The MacArthur study operationalized three criteria of successful aging (as shown in Figure 12)

With the MacArthur Foundation's support of well more than 10 million dollars, the research followed a sample of 1,000 older adults who met the criteria over a period of seven years. For a decade, the MacArthur group met regularly to share updates, discuss concepts and methodologies, and analyze data, with the greatest effect perhaps being the National Research Agenda on Aging, a blueprint for research

in gerontology and geriatrics. Fifteen research priorities were recommended, in five key areas of investigation: (a) basic biomedicine, (b) clinical medicine, (c) behavioral and social areas, (d) health services delivery, and (e) biomedical ethics.

Researchers argued that the emphasis on normality as, e.g., outlined by the Duke Studies on "normal aging," They created a number of limitations. For example, Rowe and Kahn stated that most gerontological research focused on average tendencies within different age groups and neglected the substantial heterogeneity within such groups—a disparateness that appears to increase with age. Thus, age itself could not serve as a sufficient explanatory variable, and habits shaped by psychosocial influences were also seen as very important.

Consequently, they proposed the development of a conceptual distinction within the "normal" category, which would serve to contrast usual aging with successful aging. Rowe and Kahn's emphasis at that time was on maintaining physical health and avoiding disease. The approach Rowe and Kahn took was well received, and subsequent publications helped underline the approach Rowe and Kahn took to popularize the term successful aging. In 1997, Rowe and Kahn further refined their conception and offered a now well-known

SUCCESSFUL AGING	PRIORITIES
Freedom from disease and disability	Basic Biomedicine, & Clinical Medicine
High cognitive and physical functioning	Behavioural and social areas
Active engagement with life.	Biomedical Ethics

Figure 12: Criteria of successful aging

graphic representation that included three important components: low probability of disease and disease-related disability, high cognitive and physical functional capacity, and active engagement with life. Where all three components overlap (i.e., the combination of all three), successful aging is fully represented. The model is testable by assessing to what extent older adults are able to fulfill one, two, or all three components. The consequence, however, is that very few older people are able to maintain high levels of functioning to be labeled "successful" illustrated this point by operationalizing two of the three criteria (avoidance of disease/disability and high physical/cognitive functioning) with a quantifiable phenotype (six common diseases and two functional measures—physical and cognitive) in

a cohort of 5,820 middle-aged American men of Japanese ancestry, healthy at baseline, who were followed for 40 years. From an average age of 54 years, only 11% of the cohort was considered "successful" by age 85 years. A follow-up study of the same cohort of aging men who were healthy in their 70s was recently conducted. Of 1,292 healthy participants, age standardized to 70 years at baseline, 1,000 men (77%) survived to age 85 years (34% healthy) and 309 (24%) survived to age 95 years (<1% healthy). Only one man could be considered a "successful ager" at age 100 years. [59, Rank 1]

Advancing a Comprehensive Approach

The Process of Disengagement

Carl Jung's work on aging during the 1920s and 1930s may be viewed as the most significant forerunner of modern gerontological thinking. He identified late life as a process of psychological turning inward. This view is echoed in subsequent work of gerontological theorist Bernice Neugarten, as she described late life as bringing with it increased interiority. One of the earliest definitions of successful aging found in the gerontology literature is the one introduced by Robert Havinghurst. He

> **"Disengagement theory postulates that society withdraws from the aging person equally as much as the person withdraws from society."**

suggested that in order for the science of gerontology to provide good advice, it must have a theory of successful aging. Such a theory should describe conditions promoting a maximum of satisfaction and happiness.

For Havighurst, the study of successful aging was a central theme for gerontology as a discipline. It is well known that at the time of Havighurst's proposition, there existed two contrasting theories of successful aging: activity theory and disengagement theory. Activity theory stated that aging successfully meant maintaining middle-aged ***activities and attitudes into later adulthood; gerontologists generally preferred this theory because it was assumed to capture the desire of aging individuals.*** Disengagement theory, on the other hand, meant that a person aging successfully would want, over time, to disengage from an active life. It should be possible to select which of these two theories should prevail by creating an operational definition of successful aging and a method of measuring the degree to which people fit this definition. [53, Rank 2]

The Perception of Gerotranscendence

Richard Livinson came forth with typologies of adjustment to retirement. Their research was based on an in-depth study of 87 men and The mature and armored elders each relied on activity and engagement to derive life satisfaction. In contrast, the rocking chair type savored the opportunity to be freed from work and other activities and enjoyed a passive life-style.

The two poorly adjusted or unsuccessful groups included

"Angry Men"- Those who blamed others for their discontent in late life.

"Self-Haters"- Those who engaged in self-blame for their unhappiness.

This early appreciation of the importance of personality in late life has been reflected in subsequent gerontological research.

A decade later, it was concurred that the pivotal factor in predicting which individuals will age successfully is personality. Coping style, prior ability to adapt, and expectations of life, as well as income, health, social interactions, freedoms, and constraints were all seen as part of the coalescence of personality and thus played into the enormous complexity of successful

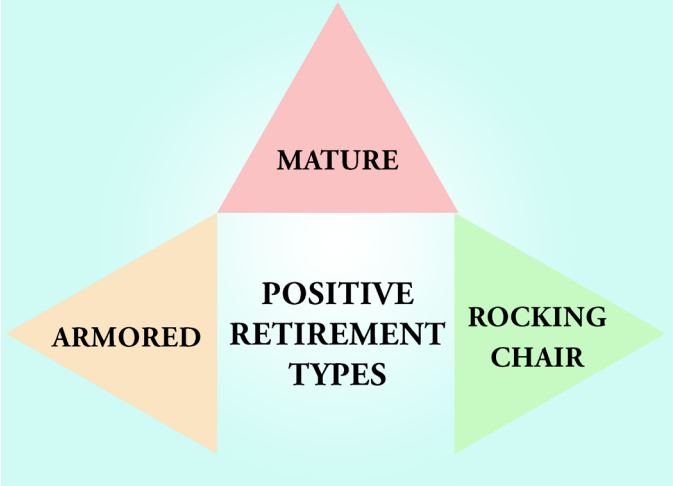

Figure 13: Retirement Types

aging. Accordingly, Neugarten added health and social characteristics to the simpler model that was focused only on personality. Thus, one can recognize multidimensionality in views of successful aging that has been reflected in these early gerontological formulations. [80, Rank 5]

> "The Theory of Gerotranscendence states that a shift in meta-perspective from a more materialistic and pragmatic view of the world to a more cosmic and transcendent one occurs as we age."

Perch's subsequent three factor model shares some similarities with previous concepts of Neugarten and colleagues and Reichard and colleagues as they added social adjustment and engagement to health and cognitive functioning in defining successful aging. Most subsequent

models of success identify central tendencies, whereas they were pioneering in their belief that there are alternative pathways to success. [68, Rank 2]

The Perception of Gerotranscendence

We do not have to go too far in history to recognize another predecessor to the concept of successful versus unsuccessful aging. Erik Erikson's concept of ego integrity versus despair can be seen as an earlier version of the successful aging concept. Erikson presents eight stages of the life span covering the period of infancy to old age. Successful resolution of challenges posed by each stage is a requisite for successful mastery of the next stage. The seventh and eighth stages cover adulthood and old age.

Erikson's criteria of successful aging are subjective and phenomenological. Individuals who view their life as having been a failure or as very unproductive, and would have lived it entirely differently if they had to do it all over again, would develop "ego despair," which can cause depression, anger, and finding fault with oneself and the surrounding world. Erikson offers no discussion of objective measures of physical health or of a diagnostic psychiatric disorder. [70, Rank 5]

EIGHT STAGES OF LIFE- ERIKSON	
0-1 ½ years	Trust Vs. Mistrust
0-1 ½ years	Autonmy Vs Shame And Doubt
0-1 ½ years	Initiative Vs Guilt
0-1 ½ years	Industry Vs Inferiority
0-1 ½ years	Identity Vs Role Confusion
0-1 ½ years	Intimacy Vs Isolation
0-1 ½ years	Generativity Vs Stagnation
0-1 ½ years	Ego Integrity Vs Despair

Table2: Erikson's developmental stages

As we consider the shared foundations and interconnectedness of many leading conceptualizations of successful aging, it is useful to consider overlap between formulations of Erikson, Tornstam, and Peck, whose work is seldom referred to in the successful aging literature. Robert Peck's tasks of ego integrity (1968) include ego differentiation, body transcendence, and ego transcendence. ***Ego differentiation may be seen as primarily subjective self-assess-***

ment. Body transcendence involves overcoming physical limitations and emphasizing compensating rewards of one's cognitive, social, and emotional life. Ego transcendence refers to a positive anticipation of death through legacy building based on a generative life. This theme appears to be an embryonic form of Baltes' concept of selective optimization with compensation - Ego transcendence, refers to coping with life's challenges in a positive and constructive manner. [77, Rank2]

Peck's Approach to Aging

Robert Peck's tasks of ego integrity include ego differentiation, body transcendence, and ego transcendence. Ego differentiation may be seen as primarily subjective self-assessment. Body transcendence involves overcoming physical limitations and emphasizing compensating rewards of one's cognitive, social, and emotional life. Ego transcendence refers to a positive anticipation of death through legacy building based on a generative life. This theme appears to be an embryonic form of Baltes' concept of SOC. Ego

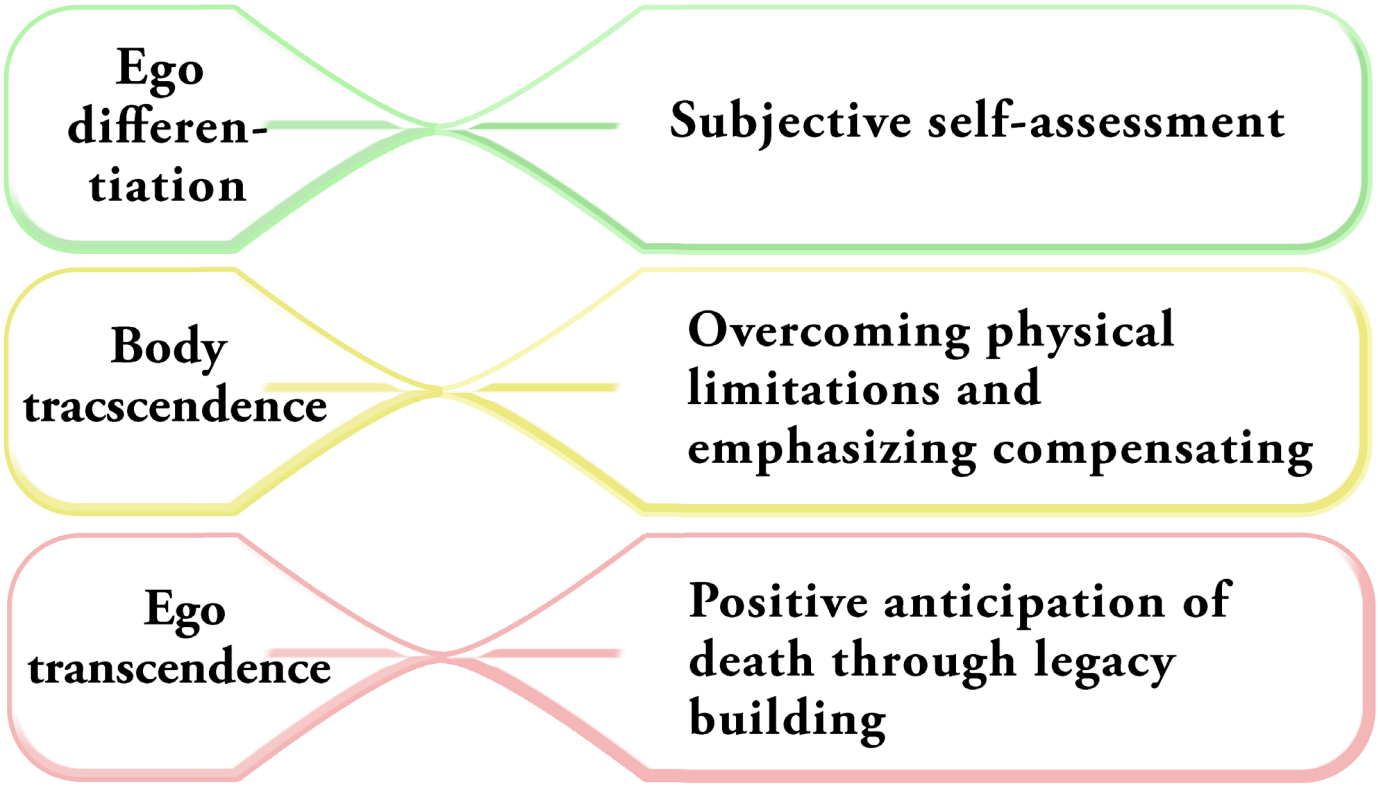

Figure 14: Robert Peck's tasks of ego integrity

transcendence, refers to coping with life's challenges in a positive and constructive manner.

These early gerontological and psychological formulations foreshadow developmental theory of positive aging, which he termed "gerotranscendence." Successful aging, he suggested, counteracts erroneous projection of midlife values, activity patterns, and expectations onto old age. An achievement of gerotranscendence that is focused on legacy building and existential concerns, on the other hand, would allow old age to possess its own meaning and character. [78, Rank 2]

> **"The seventh stage of Erikson, covering mid adulthood, is termed gene-rativity versus stagnation. During this stage, the challenges involve successful mastery of work life, creative activity, and raising a family, all involving contributions to the next generation. The eighth and final stage is termed integrity versus despair. Ego integrity is achieved through evaluation of one's life as having been a fulfilling and satisfying one."**

Challenges and Opportunities of Old age

The prevalence of aging population is increasing not only in developed countries, but also in developing countries. The ageing of the world's population is a global phenomenon with extensive economic and social consequences. The ratio of the elderly population above 60 years is now 1 in 10. By the year 2050, the ratio would have increased up to 1 in 5. This older population will continue to age and currently, people aged 80 years and older represent 11% of the population aged 60 and above. By 2050, those over 80 will represent 27% of this older population. The tempo of ageing is expected to be more rapid in developing nations.

Assessing and addressing Physical problems

It requires evaluation of multiple issues, including physical, cognitive, affective, social, financial, environmental, and spiritual components that influence an older adult's health and is based on the premise that a systematic evaluation of frail, older persons by a team of health professionals may identify a variety of treatable health problems and lead to better health

outcomes. The content of the assessment varies depending on different settings of care - home, clinic, hospital, nursing home.

Framework of Geriatric Assessment

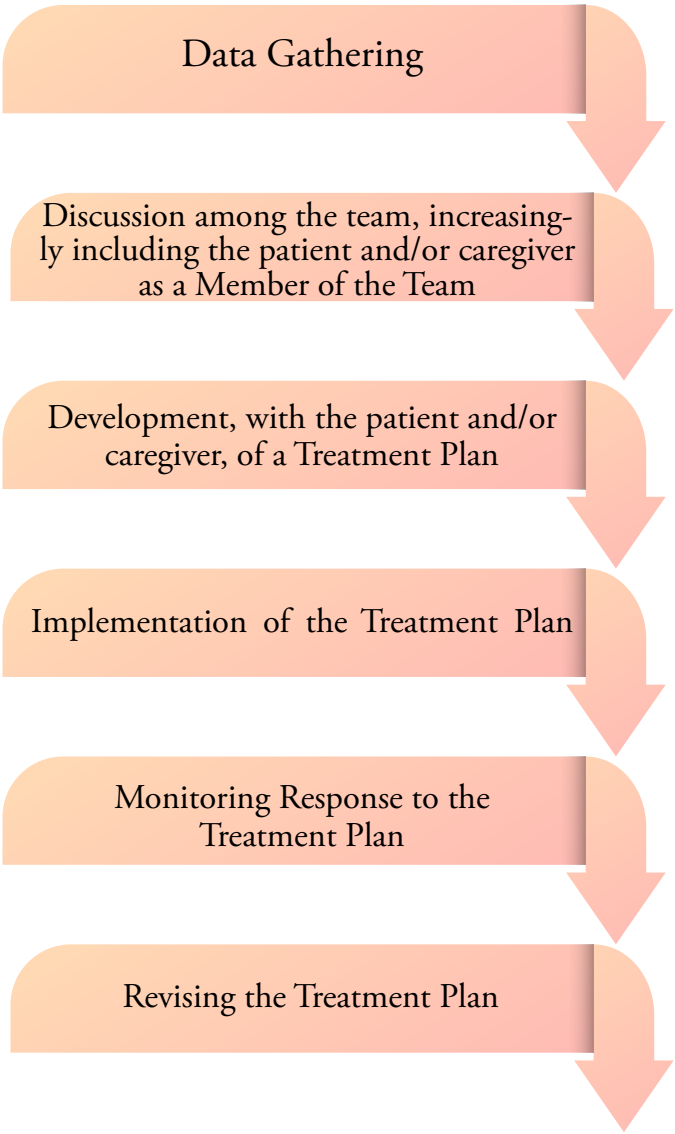

Figure 15: Geriatric Assessment

Data Gathering should include all the components (as shown in Figure 16)

DATA COLLECTION IN GERIATRIC EXAMINATION

- General History
- Past Medical History
- Medications
- Social History
- Review of Systems
- Ability to perform Functional Tasks and Need for Assistance
- Fall History
- Urinary and/or Fecal Incontinence
- Pain
- Sources of Social Support, particularly family or friends
- Depressive Symptoms
- Vision or Hearing Difficulties
- Whether the patient has specified a durable Power of Attorney for Health Care

Figure 16: Geriatric Data collection

Components of Geriatric Examination

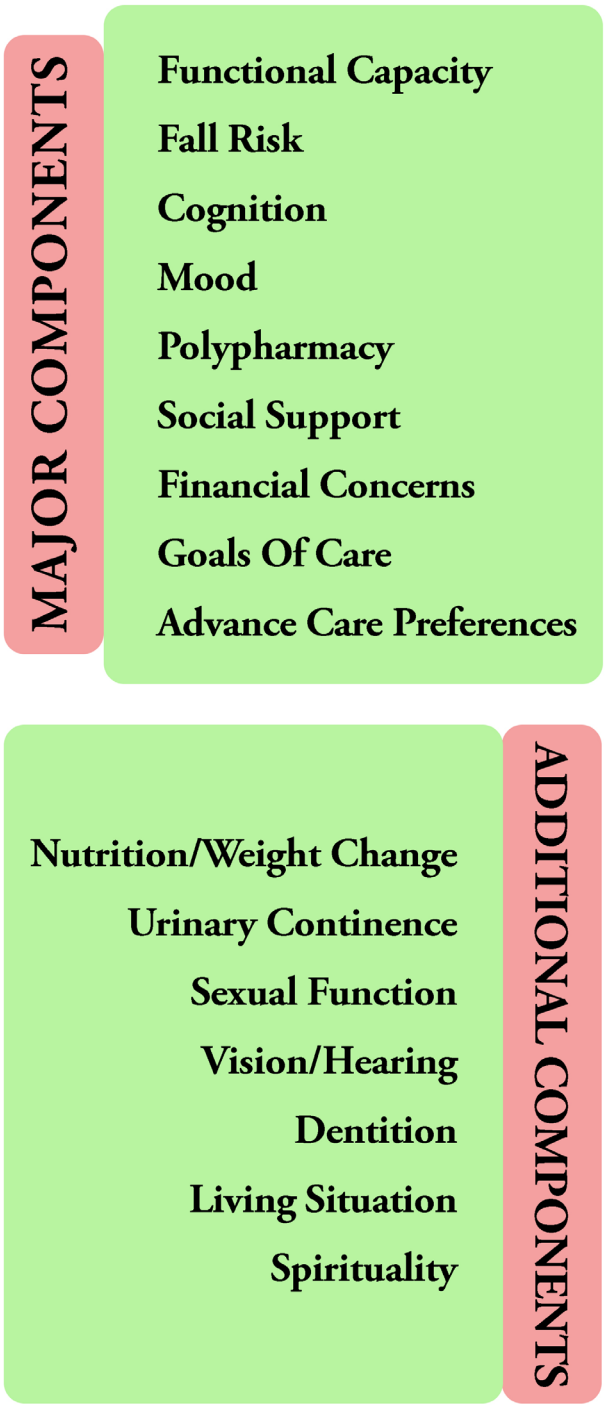

Figure : 17: Components of Geriatric Examination

Functional status : Functional status refers to the ability to perform activities necessary or desirable in daily life. Functional status is directly influenced by health conditions, particularly in the context of an elder's environment and social support network. Changes in functional status should prompt further diagnostic evaluation and intervention. Measurement of functional status can be valuable in monitoring response to treatment and can provide prognostic information that assists in long-term care planning.

Activities of daily living — An older adult's functional status can be assessed at three levels: (as shown in Figure 18)

- Basic activities of daily living (BADLs)
- Instrumental or intermediate activities of daily living (IADLs)
- Advanced activities of daily living (AADLs).

Some advanced activities of daily living- exercise and leisure time physical activity can be ascertained by using standardized instruments. However, given the broad nature of advanced activities of daily living, open-ended questions asking how one's day is spent might provide a better assessment of function in healthier older persons. Adults over age 70 are more likely to have motor vehicle accidents as well as increased associated mortality. The patient's ability and safety to drive a car should also be evaluated in the functional assessment.

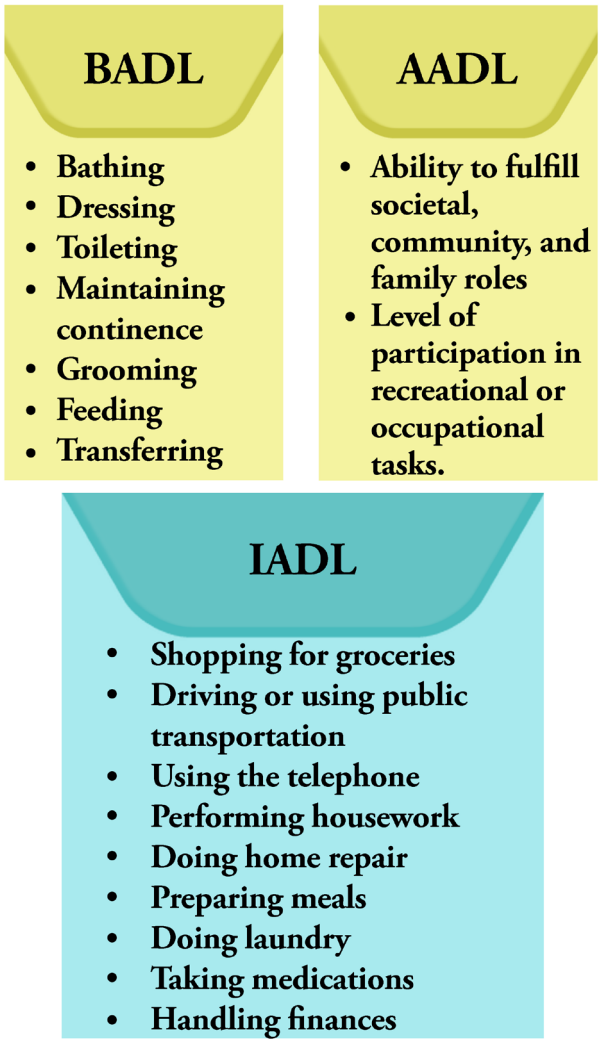

Figure 18: Functional Status assessment

"The geriatric assessment is a multidimensional, multidisciplinary assessment designed to evaluate an older person's functional ability, physical health, cognition and mental health, and socio-environmental circumstances. It is usually initiated when the practitioner identifies a potential problem."

Gait speed: Assessing gait speed in clinical practice may identify patients who need further evaluation, such as those at increased risk of falls. Additionally, assessing gait speed may help identify frail patients who might not benefit from treatment of chronic asymptomatic diseases such as hypertension.

Falls/imbalance: Approximately one-third of community-dwelling person's age 65 years and one-half of those over 80 years of age fall each year. Patients who have fallen or have a gait or balance problem are at higher risk of having a subsequent fall and losing independence. An assessment of fall risk should be integrated into the history and physical examination of all geriatric patients

Cognition: The incidence of dementia increases with age, particularly among those over 85 years, yet many patients with cognitive impairment remain undiagnosed. The value of making an early diagnosis includes the possibility of uncovering treatable conditions. The evaluation of cognitive function can include a thorough history and brief cognition screens. It may also include detailed mental status examination, neuro-psychologic testing, tests to evaluate medical conditions that may contribute to cognitive impairment, thyroid assay,

depression assessment, and/or radiographic imaging.

Mood disorders: Depressive illness in the elder population is a serious health concern leading to unnecessary suffering, impaired functional status, increased mortality, and excessive use of health care resources. Late-life depression remains underdiagnosed and inadequately treated. Depression in elder adults may present atypically and may be difficult to assess in patients with cognitive impairment. A two-question screener is easily administered and likely to identify patients. The questions are:

Question 1:

"During the past month, have you been bothered by feeling down, depressed, or hopeless?"

Question 2:

"During the past month, have you been bothered by little interest or pleasure in doing things?"

Polypharmacy: Older persons are often prescribed multiple medications by different health care providers, putting them at increased risk for drug-drug interactions and adverse drug events. The clinician should review the patient's medications at each visit. The best method of detecting potential problems with polypharmacy is to have patients bring in all of his medications -prescription and non-prescription in their bottles. ***Discrepancies what is documented in the medical record and what the patient is actually taking must be reconciled.*** As health systems have moved towards electronic health records and e-prescribing, the potential to detect potential medication errors and interactions has increased substantially. Although this can improve safety, record-generated messages about unimportant or rare interactions may lead to "reminder fatigue."

Social and financial support: The existence of a strong social support network in an elder's life can frequently be the determining factor of whether the patient can remain at home or needs placement in an institution. A brief screen of social support includes taking a social history and determining who would be available to the elder to help if he or she becomes ill. Early identification of problems with social support can help planning and timely development of resource referrals. For patients with functional impairment, the clinician should ascertain who the person has available to help with activities of daily living. Caregivers should be screened periodically for symptoms of depression or caregiver

> "The Vulnerable Elders Scale-13 (VES-13) is a 13-item screening tool that is based upon age, self-rated health, and the ability to perform functional and physical activities. It identifies populations of community-dwelling elders at increased risk for functional decline or death over a five-year period."

burnout and, if present, referred for additional caregiving services, counselling, or support groups. Elder mistreatment should be considered in any geriatric assessment, particularly if the patient presents with contusions, burns, bite marks, genital or rectal trauma, pressure ulcers, or malnutrition with no clinical explanation.

The financial situation of a functionally impaired older adult is important to assess. Elders may qualify for state or local benefits, depending upon their income. Older patients occasionally have other benefits such as long-term care insurance or veteran's benefits that can help in paying for caregivers or prevent the need for institutionalization.

Goals of care: Older adult patients who are appropriate for assessment have limited potential to return to fully healthy and independent lives. Hence, ***choices must be made about what outcomes are most important for them and their families. Goals are more informally determined in the course of clinical care.***

Advance care preferences: Clinicians should begin discussions with all patients about preferences for specific treatments while the patient still has the cognitive capacity to make these decisions. These ***discussions should include choosing an appropriate decision-maker - appointing a durable power of attorney, also known as a health care proxy, to serve as a surrogate in the event of personal incapacity,*** clarifying and articulating patients' values over time, and thinking about factors other than the patient's stated preferences in surrogate decision-making. As an example, patients who want to extend their life as long as possible might be asked about what should be done if the patient's health status changes and doctors recommend against further treatment, or if it becomes too hard for loved ones to keep them at home. Advance directives help guide therapy if a patient is unable to speak for him or herself and are vital to caring optimally for the geriatric population.

Most meta-analyses have found that comprehensive geriatric assessment (CGA) leads to improved detection and documentation of geriatric problems. Patients

assessed at home are usually followed for at least one year. ***Multiple meta-analyses have found home assessments to be consistently effective in reducing functional decline as well as overall mortality***

Numerous studies have compared the effect of inpatient geriatric comprehensive care with usual care. A meta-analysis of 29 randomized trials involving nearly 14,000 participants found that patients who received geriatric comprehensive care were more likely to be living at home and were less likely to be admitted to a nursing home up to a year after hospital admission. [201, Rank 3]

Studies of geriatric assessment have found inconsistent benefit for post-hospital discharge programs. As an example, in a randomized trial of post-hospitalization geriatric assessment conducted in the home versus usual care, there was no difference between treatment and control arms in reducing functional decline, readmission rates, or mortality after 60 days. ***In another randomized trial of comprehensive discharge planning with home follow-up versus usual care, there was no difference in functional status, post-discharge acute care visits, depression, or patient satisfaction after 24 weeks.*** However, those randomly assigned to the intervention were less likely to be readmitted to the hospital compared with the control group. The intervention was also associated with a reduction in cost. Subsequent studies of similar discharge management programs with in-home follow-up have also found a reduction in readmission rates, for up to 12 months in some studies. Geriatric assessment programs for patients discharged to home from the emergency department were found to be effective at reducing emergency department visits and hospital admissions.

However, in a large, cluster-randomized trial of multidimensional geriatric assessment followed by either geriatric team management or the primary care clinician alone, there were no differences between the groups in hospitalization, admission to other institution and quality of life.

Interventional Perspectives for Geriatric Psychosocial Wellbeing

Psychologists have given considerable attention to how well-being relates to other "individual difference" variables, such as personality traits. An early investigation used the big five model of traits and found that openness to experience was linked with personal growth, agreeableness was linked with positive relations with others, and extraversion, conscientiousness and neuroticism were all linked with environmental

mastery, purpose in life, and self-acceptance. Many similar patterns were evident in sample. Comparative data from U.S. and German samples showed that personality traits rather than self-regulatory characteristics were strong predictors of well-being in both countries.

Longitudinal inquiries have addressed links between early personality profiles (age 16) and midlife well-being, finding that teenage females who were more outgoing (extraverted) had higher well-being (all dimensions) in midlife. Teenage neuroticism, in contrast, predicted lower well-being on all dimensions, with the effects mediated through emotional adjustment. Interactions among traits were used to predict changes in well-being over the course of community relocation. Openness to experience, for example, was found to amplify extraversion in predicting higher well-being, but it also amplified neuroticism in predicting greater distress. [96, Rank 4]

A variety of other psychological variables have been linked with well-being. Optimism, for example, predicts higher well-being, with the effects mediated by sense of control. Stable self-esteem predicts higher scores on autonomy, environmental mastery, and purpose in life than unstable self-esteem. Emotion regulation strategies predict well-being: reappraisal is a positive predictor, whereas suppression is a negative predictor. Life longings, defined as intense desire for alternative states and life realizations, predict lower well-being, but not if life longings are perceived as controllable. Life management strategies (selection, optimization, compensation) have been positively linked with well-being (after controlling for personality and motivational constructs). The satisfaction of psychological needs contributes to higher well-being. Intentional activity changes predict gains in psychological well-being, while those who revealed shifts from extrinsic to intrinsic values over the college career had greater increases in psychological well-being. [82, Rank 3]

Interpersonal well-being (positive relations with others) has been linked with self-reported empathy as well as emotional intelligence, after controlling for personality traits and verbal intelligence. Cross-cultural research has shown that high independence (personal control) predicted higher well-being in the U.S., whereas high interdependence (relational harmony, measured as the absence of relational strain) predicted higher well-being in Japan

Mortality analysis showed that health outcomes assessed at the same time as

loneliness helped explain the effect of loneliness on mortality, but did not permit evaluation of the causal direction between loneliness and health. Using cross-lagged models, we found that loneliness predicted increases in depressive symptoms, modest

decreases in self-rated health and increases in functional limitations over two years even when the reciprocal effects of these health measures on loneliness were taken into account. These findings are consistent with a causal direction that implicates decrements in emotional and physical health as mechanisms through which loneliness leads to increases in mortality risk. [73, Rank 2]

Possessing a richness of social attachments and friends protects against mortality, and generally signifies lower levels of loneliness. Ancillary analyses confirmed that respondents who were married and who had more friends living nearby were less lonely -not shown, but these objective characteristics of respondents' social lives did not explain much of the effect of loneliness on mortality risk. This is consistent which, in a much larger sample of more than 6,500 adults followed over a 34-year period, found only a modest effect of marital status and no effect of number of close friends and relatives on mortality risk independent of a significant effect of loneliness.

Social relationships may influence mortality to the extent that family and friends exert social control by encouraging and supporting salubrious health behaviors. At the same time, we noted that health behaviors are insufficient to account for the mortality effects of the existence (or not) of social relationships in humans and are not plausible explanations for mortality effects in socially isolated non-human social animals. The effects of loneliness on self-control, on the other hand, suggest that health behaviors may differ as a function of loneliness and help explain mortality differences. This reasoning did not find support, however. Although health behaviors influenced mortality as expected, health behaviors (physical exercise, smoking) did not explain loneliness differences in mortality. [131, Rank 2]

Cognitive Decline

It is well known that both hearing loss (HL) and cognitive impairment are associated with ageing. The first report on the independent relationship between hearing impairment and cognitive dysfunction appeared about 30 years ago , suggesting the hypothesis that age-related hearing loss (ARHL) may contribute to dementia. Probably the lack of interaction among

specialists, audiologists, neurologists, epidemiologists and cognitive scientists has limited the possibility to better recognise their correlation and impact on elderly people. More recently, growing epidemiological, neurobiological and neuroimaging evidence opened a new interest in this field and an increasing number of reports have focused on the relationship and effects of both HL and cognitive decline on the quality of life and rehabilitative perspectives. age-related hearing loss can be defined as a progressive, bilateral, symmetrical HL that reduces an individual's communicative skills due to age and can be considered a multifactorial complex disorder, with both environmental and genetic factors contributing to the aetiology of the disease. Cognitive impairment generically refers to a wide range of conditions ranging from mild cognitive impairment to severe dementia, while different degrees of hearing loss can impact the communicative impairment and quality of life. ***The increasing prevalence of cognitive decline and the devastating impact of dementia on affected individuals and the burden imposed on families and society has made prevention and treatment of dementia a public health priority.*** Many aspects of daily living of elderly people have been linked to hearing abilities, showing that age-related hearing loss affects the quality of life, social relations, motor skills, psychological aspects, function and morphology in specific brain areas. On the basis of clinical evidence, it has been suggested that age-related hearing loss is linked with more rapid progression of dementia. The potential public health impact of age-related hearing loss in the context of dementia is substantial given the high worldwide prevalence of HL in older adults and the ready availability of existing hearing rehabilitative interventions, which remain risk free and underutilised. Until now, in the literature there are no studies demonstrating the utility of hearing rehabilitation in changing the natural history of dementia. Interdisciplinary efforts to investigate and address age-related hearing loss in the context of brain and cognitive impairment in older subjects are challenging. Despite the increasing attention, the relationship between cognitive status and HL is still controversial, and in particular it remains to be investigated whether HL is involved in the causal mechanisms of dementia or whether there is an independent relationship in which age-related hearing loss might enhance the effects of dementia. [95, Rank 5]

Loneliness among Elderly

The influence of loneliness on mortality is attributable to the relationships between loneliness and social isolation, unhealthy behaviors, and poor health. Prospective epidemiological studies have shown that objectively indexed social isolation is a major risk factor for morbidity and mortality. Because feelings of loneliness are more prevalent and intense in socially isolated individuals, the mortality effects of loneliness may be explained, at least in part, by the higher likelihood of being more socially isolated among those feeling lonely. The effect of social isolation on health and mortality, in turn, has been attributed in part to the direct influence of friends and family on a person's health behaviors (e.g., exercise, adequate and regular rest) which influence physiology and health. To the extent that socially isolated individuals are more likely to engage in poor health behaviors, health behaviors may help explain their increased mortality risk. Two lines of evidence suggest otherwise, however. First, health behaviors in epidemiological and field studies have failed to explain the health effects of social isolation in humans. Second, non-human social animals subjected to social isolation are also at increased risk for early morbidity and mortality, suggesting that the effects of isolation extend beyond the social control of health behaviors exerted by concerned friends and family.

Health behaviors may help explain loneliness differences in mortality risk, however. Our theoretical model of loneliness holds that loneliness activates implicit hyper vigilance for social threat in the environment. ***Chronic activation of social threat surveillance diminishes executive functioning, and heightened impulsivity influences the tendency of individuals to engage in health behaviors that require self-control.*** Consistent with this notion, among middle- and older-age U.S. adults, loneliness was associated with a lower likelihood of engaging in physical activity and a faster decline in levels of physical activity participation over a two-year follow-up period. [112, Rank 2]

Scientists from subfields of sociology as well as family studies have linked diverse family roles, family transitions and unanticipated family events to psychological well-being. Many adults occupy multiple family roles (parent, child, sibling, spouse). How these statuses are linked with diverse aspects of well-being has been examined in national U.S. surveys. Findings are

complex, depending on respondents' age and gender, but they highlight that parenting children is more challenging to the well-being of women than men, that the well-being benefits of marriage are fairly similar for men and women, and that having unhealthy aging parents undermines the well-being of young and midlife women. Whether having multiple roles enhances or undermines well-being has been examined, with findings supporting the idea that greater role involvement enhances well-being. Well-educated women in multiple roles showed higher levels of autonomy, with perceived control moderating some links between multiple roles and well-being.

Other studies have investigated what people do in their adult roles. ***Helping those in one's family has been linked with higher levels of purpose, self-acceptance, and positive relations in men, whereas general helping of others was linked with higher purpose and self-acceptance in women.*** In dealing with the functional decline that accompanies aging, the sense of obligation that people feel to help others protected against declining levels of personal growth and self-acceptance. Family connections and family rituals have been linked to well-being, both in adolescence and midlife. [102, Rank 2]

Suicide and Depression

Suicidal behavior in older adults is more likely to result in death than at younger ages. In the US in particular, older men are more likely to use firearms to attempt suicide than at younger ages and are likely to die from their attempts. The ratio of suicide attempts to suicide deaths is estimated to be 10-20:1 in the general population and as high as 200:1 in adolescents. Among older adults, however, there are estimated to be only 1 to 4 suicide attempts for each death by suicide. This disparity may be explained by the medical illness burden of older adults making any injury more likely to result in death; their relatively greater social isolation, making life-saving rescue less likely; and the suicidal person's greater lethality of planning and implementation. Combine this lethality with the fact that older adults are less likely to report suicidal thoughts than individuals at younger ages, and the significance of this problem looms large. To address this issue researchers have emphasized taking a public health approach to late-life suicide prevention. This approach emphasizes prevention across the spectrum of interventions, not just those interventions that target high-risk individuals, which is most often considered in the

literature. The Institute of Medicine has suggested the use of terminology describing preventive interventions at three levels: indicated, selective, and universal. Indicated interventions are those that target high-risk individuals; in the case of suicide prevention, this might include individuals with suicidal thoughts, previous suicide attempts, or psychiatric disorders. These types of interventions most often are provided in mental health and primary care clinics. Examples include, antidepressant medications, cognitive therapy for suicide attempters, problem solving therapy for late-life depression, and collaborative care models for late-life depression.

Selective preventive interventions are those that target individuals or groups with more distal risk factors; in the case of late-life suicide, this might be socially disconnected older adults, or those with multiple comorbid disorders and significant functional impairment. These types of ***interventions could be provided in many settings outside the mental health or primary care clinic, such as through aging services agencies—a potential benefit given that older adults do not tend to seek specialty mental health services.*** A selective preventive intervention that provided supportive phone calls to older adults (mostly women), called the Tele Help—Tele Check program, was found (in a quasi-experimental design) to significantly reduce the number of suicide deaths. [99, Rank 2]

Counselling and Therapy for Grief

Complicated Grief (CG) is a prolonged, impairing mental health condition affecting about 7% of the bereaved. ***Complicated Grief may be especially prevalent in older adults. Though evidence-based treatments for Complicated Grief have been developed, little is known about support-seeking in older adults with grief.***

A descriptive phenomenological approach to explore the complicated grief support-seeking process by conducting in-depth interviews with 8 complicated grief positive older adults who had completed participation in a randomized clinical trial of complicated grief treatment. Five primary themes arose: observing that grief was causing a great deal of distress and impairment; grief not meeting expectations of what grief "should be"; an important influence of social relationships on support-seeking; lack of effectiveness of grief support groups and/or care from mental health professionals prior to study enrollment; and strong reactions to the label of

complicated grief. Themes may help inform efforts to engage older adults with complicated grief in effective care. [67, Rank 2]

Preliminary evidence indicates that adults with complicated grief can benefit from mental health treatment which specifically focuses on their symptoms, but little is known about support-seeking in this population. Across mental disorders, there is a well-documented gap between the number of people suffering from mental disorders and the use of mental health treatment. In a large U.S. representative sample of adults, only 5.8% received mental healthcare via a specialist mental healthcare professional, while 30.8% of those surveyed met diagnostic criteria for a psychiatric condition. Moreover, the gap between the need and mental health service use for older adults is even larger when compared to younger age groups. For example, in one survey in Baltimore, adults aged 60 years and older were only one-third as likely to consult a specialist in mental health compared to adults aged 40-59, even when controlling for type of disorder and past use of mental health services. The explanation for these differences is still being determined, and may be due either to cohort effects or to issues specific to chronological age. Aspects of the U.S. mental healthcare system may also contribute to low mental health service utilization among older adults, including fragmentation of the system of care, lack of matching of services to the preferences and needs of older adults, limited Medicare coverage for care, low use of evidence-based practices, a shortage of providers skilled in geriatric mental healthcare, and poor continuity of services. The available literature suggests that a similar gap in service use could exist among those with complicated grief. Analyzing a sample of 110 widowed adults interviewed about 4 months after their loss; found that only 33.3% of those with complicated grief symptoms had used mental health services in the previous 2 months, though the study did not explore the reasons behind this finding. More data on bereavement service use among those with complicated grief is needed. [73, Rank 3]

Dealing with Substance Abuse among Elderly

In 2016, the U.S. general issued a call to action to generate knowledge on mental health and substance abuse disorders. Since that time, the gerontological canon has seen a burgeoning literature develop on the biological, neurological, and psychosocial impact of mental health disorders among older adults. Yet substance and alcohol use

disorders and related treatment modalities have not received the same attention within leading gerontology journals.

Older adults represent a growing at-risk population group for substance use disorders (SUDs). In 2000, an estimated 568,000

persons age 55 or older had used illicit drugs in the past month and more than 5 million were "binge" alcohol users. Projections are that the number of adults age 50 and older with an alcohol or substance use disorders will double to 5.7 million by 2020, and that the proportion of this age group using illegal substances and using prescription drugs for now. The percentage of adults age 55 and older with a first-time admission to substance abuse treatment has increased by nearly 65% in 11 years, with a reported 5.51% in 1998 growing to 9.09% in 2008. Concomitantly, the population of older adults seeking treatment mentioning alcohol alone or in combination with other drugs has declined whereas the proportion mentioning illicit drugs only has grown. These older adults differ in important ways from younger adult admissions in their clinical presentation. [54, Rank 1]

Of particular concern are the trends in the last decade of increasing analgesic abuse among older adults and their effect on morbidity and mortality. In past decades, there was little discussion about older adults abusing alcohol and the misuse of prescription drugs, let alone substance abuse. This is of particular concern for the social work profession that is addressing an aging population. Often, social workers will come into contact with an aging population outside of traditional substance abuse service settings. The ability to screen for and refer to appropriate substance abuse services for older adults is a critical skill for social workers addressing an aging population in the United States. Social workers employed in traditional substance abuse settings will also need to have the knowledge and skills to treat an older adult population.

Older adults are uniquely at risk for substance-related consequences. Ageing-related physiological changes can enhance one's sensitivity to adverse effects of substance use. Substances of abuse act by altering neurotransmission in the brain; ageing-related changes to the brain, drug metabolism and pharmacokinetics may interact and intensify older substance users' risk for developing neurotoxicity and severe medical consequences. Ageing-related decline in health status also increases older adults' likelihood of taking medications for either medical or psychological conditions

> **"Older adults are at particular risk for negative health outcomes from substance use disorders including falls, hypertension, cancer, early onset dementia, cognitive deficits, and a host of chronic medical health conditions. The additional burden of comorbid mental health disorders associated with substance use disorders further complicates effective diagnosis and treatment."**

and they may also self-medicate with non-prescription substances. For instance, approximately one in four older adults used psychoactive medications with abuse potential. Medication use could interact with substance use and cause adverse effects. Substance use may trigger or intensify medical conditions, such as diabetes and cardiovascular disease; Use of psychoactive medications also can lead to nonmedical use or even dependence [27, Rank 2]

Substance abuse among older people, which is often under-diagnosed, is a significant public health issue. Research has documented that alcohol- and drug-related problems have negative impacts not only on the health and well-being of individuals but also the social aspects of the community. At the individual level, ***substance abuse may exaggerate the normal slowing of reaction times and other physical functions, among older adults.*** This may increase the risk of falls and accidents. At the community and social level, alcohol and drug abuse presents a major challenge for the criminal justice system, the health system, and worker productivity. Alcohol and drug abuses are also identified as risk factors for domestic violence and road accidentsn alternative explanation for the extremely low prevalence of the diagnosis of elder abuse in these datasets is that emergency providers are making the diagnosis of elder abuse, or at least suspecting it, and possibly reporting their concerns to APS, but not recording elder abuse as a formal diagnosis which translates into an ICD-9 diagnosis code. Although this explanation likely partly explains the low prevalence of the diagnosis of elder abuse in these datasets, we believe this explanation is inadequate. Elder abuse in the US has an estimated prevalence of 5% which is similar to the estimated prevalence of elder abuse. But, among children aged 0 to 3, the percentage of visits in which child abuse is diagnosed in NEDS is 1.2%. This is 100 times the percentage of visits diagnosed with elder abuse. In NEDS the estimated prevalence of intimate partner violence (IPV) among women aged 18–64 years is 0.07%.Thus, the per

centage of visits resulting in a diagnosis of IPV is 5 times the percentage of visits by older adults diagnosed with elder abuse, even though the estimated 1 year prevalence of IPV among women in the US (1.3%) is 4 times lower than the lowest estimates of the prevalence of elder abuse among community dwelling older adults. The substantially higher rates of diagnosis of child abuse and IPV in recent analyses of NEDS suggests that the low rate of diagnosis of elder abuse results from a failure of emergency providers to identify this problem rather than a failure of the dataset to capture diagnoses being made by physicians. [92, Rank 4]

Substance dependence is associated with a broad range of negative consequences and represents a tremendous burden to individuals and society. About 2.0% of adults living in the United States (US) had a drug use disorder in the prior 12 months (1.4% abuse, 0.6% dependence), and 10.3% reported a drug use disorder at any point in their lifetime (7.7% abuse, 2.6% dependence). While several sociodemographic correlates were associated with greater risk of both drug abuse and dependence, other correlates were specific only for abuse or only for dependence. Furthermore, recent research showed that alcohol abuse/drug abuse and alcohol dependence/drug dependence populations are not homogeneous and require elucidation of the subgroups to identify etiologies. These findings highlight the importance of disaggregating different levels of severity among the same spectrum. [17, Rank 3]

Managing Elder Abuse

Elder abuse is an under-recognized and under-reported public health issue which places victims at increased risk for disability and death and increased use of health care resources. Although difficult to estimate, elder abuse is ***estimated to cost billions of dollars annually. Estimates of the prevalence of elder abuse among community-dwelling older adults range from 5–10%.*** Elder abuse can be classified into five types that may occur concurrently. (as shown in Figure 19)

Described risk factors for elder abuse include female, younger age (among older adults), living with multiple household members other than a spouse, lack of social support, low income, poor physical health, and functional impairment.

Emergency departments (EDs) have been shown to be important sites for identifying other types of abuse including intimate partner violence and child abuse, and similar to other forms of abuse, elder abuse

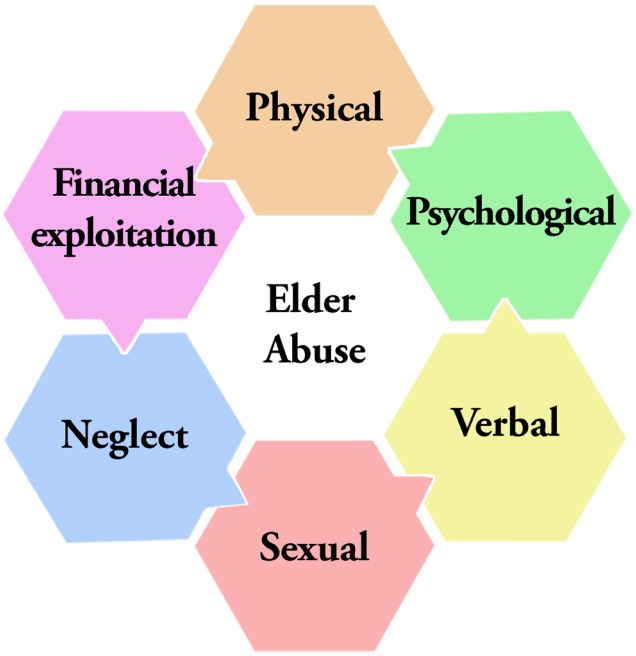

Figure 19: Types of Elder abuse

may result in injuries or illness prompting emergency evaluation. For these reasons and because of the increasing use of emergency departments by older adults, emergency departments are a potentially important setting for identifying elder abuse. In two Virginia emergency departments, it was observed that 46% of elderly patients had functional difficulties which might place them at increased risk for elder abuse. In a single emergency department in North Carolina, it was observed that 7% of older adults reported experiencing physical or psychological abuse in the past year. However, little is known about how often elder abuse is diagnosed in emergency departments, or the characteristics of patients that are diagnosed in emergency departments. A better understanding of current practice patterns regarding the diagnosis of elder abuse in US emergency departments is needed to inform efforts to improve identification of this common and costly problem. [68, Rank 1]

A broader definition of elder abuse has also been described to include any form of physical, sexual, or psychological abuse, or neglect, abandonment, financial exploitation of an older person independent of setting or relationship between offender and victim. Recognizing that distinguishing between elder abuse and other forms of intimate partner violence experienced by older adults may be difficult, we also considered additional diagnosis codes as a broader definition of elder abuse

Diagnosis of Elder Abuse in US Emergency Departments

Emergency physicians are failing to make the diagnosis of elder abuse for the vast majority of victims for whom they provide care. A different interpretation of these data is that prior estimates of elder abuse are inaccurate, but this explanation seems unlikely given prior studies, which consistently observe prevalences between 5% and 10%. In a single academic emergency

department, it was found nine of 138 (7%) patients aged 65 years and older reported physical or psychological abuse in the past year, but none were identified by the emergency physician. Among community dwelling older adults known to be victims of elder abuse, it was found that only fifty two out of 572 visits (9%) resulted in referral for an abuse investigation from emergency department personnel. Among older adults presenting to a single emergency departments in Singapore, researchers found 17 cases of elder abuse identified by emergency providers among 62,826 visits, yielding a prevalence of the diagnosis of 0.03%, which is similar to our findings.

A number of explanations have been offered for why emergency physicians do not make the diagnosis of elder abuse. One explanation is that elder abuse is difficult to identify. The elderly have a greater burden of health problems than younger individuals, and thus an emergency department visit by victims of elder abuse may be for an injury or illness unrelated or only indirectly related to elder abuse. Some victims of elder abuse may lack the mental capacity to report abuse, or may not feel empowered to report abuse due to a fear of retribution or an externally imposed solution, such as being moved to a nursing home. ***Additionally due to physiological changes, comorbid conditions, and medications such as blood-thinners, fractures and bruising can result from even minimal trauma*** in older adults making it difficult to differentiate between accidental and inflicted trauma. Unlike the well described findings shown to be suggestive of child abuse, injury patterns and radiological findings suggestive of elder abuse are only beginning to be described. An estimated 39% of cases of elder abuse are neglect, which may be a particularly difficult form of abuse to identify because the clinical manifestations of neglect may look similar to progression of an illness occuring despite appropriate care. [86, Rank 1]

Furthermore, emergency physicians may be less aggressive about diagnosing elder abuse because of a lack of formal training in recognizing elder abuse, because they tend to focus on the immediate medical problem and less on identifying underlying conditions, or because they are unsure about the necessary actions to improve outcomes for patients. Finally, the desire to ensure timely care for all patients and volume-based reimbursement mechanisms incentivize U.S. emergency physicians to make rapid dispositions. Assessing patients for elder abuse takes time, and acting on a suspicion of elder abuse to notify adult protective services (APS) and ensure the

patient's immediate safety is almost certain to delay disposition. [84, Rank 4]

The aforementioned challenge of recognizing if a patient is or is not a victim of elder abuse raises a key challenge in this work: any method used to identify elder abuse, must also weigh the harms of falsely identifying elder abuse when it is not present and the risks associated with over diagnosis. One solution to this problem is that screening instruments should be used not to define the presence of elder abuse but, rather, to define patients who appear to be possible victims of elder abuse, triggering a more careful assessment by an emergency department clinical provider or social worker rather than an immediate call to Adult Protective Services (APS). Of course any such approach will need to be mindful of mandatory reporting laws, which typically require APS referral for any patients for whom there is a reasonable cause for concern.

Ethical Decision Making Capabilities of Elders

The parental experience with ethical decision making has been extensively linked to adult well-being. Parents reporting positive experiences with their adult children had higher well-being, with such another investigation found differences between parents and childless adults. Childless middle-aged women had higher well-being if they felt they had control over this life longing. How adults themselves were parented also seems to matter – adults who recalled having authoritative rather than authoritarian or uninvolved parents reported greater psychological well-being in midlife, especially men. Those who perceived their parents to be permissive showed lower well-being. How children were doing in life was also linked with parents' well-being. Those whose children had more problems reported compromised well-being. Alternatively, parents who perceived that their children were well adjusted reported higher well-being, although children's attainment was less strongly linked with their parental well-being. Interestingly, parents who viewed their children as better adjusted than they had lower well-being. The success of sons was more strongly predictive of parents' well-being than the success of daughters, although personal comparisons with daughters more strongly predicted parents' well-being than comparisons with sons. [124, Rank 4]

Endorsement of Independence and Empowerment

Non-normative (unplanned, unexpected) family events with independence and empowerment have been studied. The trauma of losing a child has been shown to have lasting consequences: nearly 20 years after the death, bereaved parents reported poorer well-being, more depressive symptoms, and more health problems than comparison parents. However, the same investigation showed that recovery from grief was linked with deepened purpose in life. Other research showed that death of a child had more detrimental effects on the well-being of fathers than mothers, while conversely having an adult child return to the parental home decreased the well-being of mothers, but not fathers. Providing care to an aging parent has been linked with change in depressive symptoms, but such effects were reduced among daughters with higher levels of environmental mastery. Being the sibling of an adult with mental illness has been linked with less well-being and more distress compared than adults with normal siblings.

Multiple investigations have examined how early family experiences influence adult well-being. Losing a parent to death or divorce prior to age 17 was linked with lower self-acceptance, lower environmental mastery, and lower positive relations with others in midlife men, whereas parental death in childhood predicted higher autonomy in adult men, but greater depression in adult women. ***Lack of parental support during childhood was linked with increased depressive symptoms and chronic conditions in adulthood, with some effects mediated by well-being and self-esteem.*** Family dynamics (connection and individuation in the family system) during adolescence predicted adult well-being in midlife, while discrepancies between adolescents' versus parents' perceptions of family functioning were linked with lower well-being in adolescence. Elderly parents' well-being was linked to positive relationships with their adult children, with such effects traceable to family systems dynamics when children were adolescents. Those who reported experiencing psychological and/or physical violence from parents in childhood had less psychological well-being and more negative affect in adulthood. [125, Rank 3]

Decision Making Capacity and Privacy of Elderly

The interface between work and family decision making and confidentiality has been extensively studied. Work-family conflict,particularly as it relates to the

demands of caregiving, has been linked with poorer well-being. Alternatively, ***positive spill-over from work to family and from family to work is associated with better well-being outcomes.*** Changing expectations about how to fulfil work and family roles has been linked with cohort differences in how such roles are tied to well-being. For example, older women and younger men who adjusted their work schedules to meet family demands had higher self-acceptance, whereas older men and midlife or younger women had lower self-acceptance if they cut back on paid employment to accommodate family demands. Invoking comparisons between Korean and U.S. adults, positive work to family spillover was associated with better adult well-being, but not for Korean women, whereas negative work to family spillover was linked with poorer well-being, especially among U.S. women; negative family to work spillover was also linked with poorer mental health, particularly among Korean men.

Beyond work and family life, reports of well-being have been linked to participation in volunteer work. Longitudinal data showed that volunteer work over time enhanced eudaimonic, but not hedonic well-being, and that people with higher well-being at baseline were more likely to volunteer. A similar study used longitudinal data to show that a moderate amount of volunteering (up to 10 hours monthly) and donating to charity was linked with increases in well-being over a 9 year period. Formal volunteering was shown to be protective in dealing with later life role loss – specifically, volunteering moderated the negative effect of role loss on older adults' purpose in life. [130, Rank 2]

Elderly Custodians Taking Care of Grandchildren

Epidemiological and clinical studies over the past two decades have provided ample evidence that caregiving is a chronically stressful process which can have potentially negative psychological and physical health outcomes and create financial distress. ***An often neglected dimension of caregiving in the United States is the dramatic increase in the number of grandparents serving as primary caregiver to their grandchildren and great-grandchildren.*** Approximately 4.9 million children are living in grandparent maintained households. This caregiving phenomenon cuts across ethnic and social-class lines; however, the research indicates that custodial grandparents are more likely to be African American, female, poor,

and to live in the South. There is also a growing group of rural custodial grandparents that have been underrepresented in the literature. Although it is well documented that custodial grandparents experience social, economic and legal stressors, the number of grandparents taking on the role of primary caregiver to their grandchildren is rising, without an increase in resources to address these stressors. Hence, there is an increased focus on coping and well-being within this population.

There has also been an increase in the number of grandparents raising their grandchildren in rural areas. Despite the reported increase in the number of custodial grandparents in rural areas, the majority of the custodial grandparenting literature has examined grandparents raising their grandchildren in urban settings. Research suggests that geographic location is a factor that should be considered when examining custodial grandparents. ***Factors such as poverty, limited resources, especially transportation and geographic isolation can have an impact on well-being.*** Additionally, they found that the combination of very few resources, limited community support, and raising a grandchild with difficult behaviors had the most impact on grandparents' level of functioning. Over time, such stress may result in the emergence of psychological symptoms including depression, anxiety, interpersonal sensitivity, hostility, paranoid ideation, obsessive compulsive behaviors and somatization. Therefore, it is important to understand the complex nature of custodial grandparenting and how it is manifested via urban/rural differences. [76, Rank 3]

The specific factors that facilitate coping and the techniques that would increase underserved caregivers' motivation to participate in caregiving interventions should be tailored to incorporate the cultural values and beliefs of the caregivers' communities. For African American and rural custodial grandparents, an important cultural factor in coping appears to be community-based resources. Despite negative emotional effects caregivers may experience, community-based behavioral interventions address cultural differences that may prevent caregivers from seeking psychological help. Middle-aged and older African Americans generally tend to underutilize mental/behavioral health services. Additionally, African Americans are less likely to use community services than Whites found that African Americans' initial attitudes toward seeking mental health services were comparable to, and in some instances more

favorable than, those of Whites. However, certain cultural attitudes may reduce African Americans' desire to seek services. Focus group discussions have revealed cultural beliefs regarding the need to resolve family concerns within the family and the expectation that African Americans demonstrate strength. These beliefs were reflected in concern about disclosing information outside a trusted circle of family and friends, and by an association of psychotherapy with weakness and diminished pride. Additionally, the majority of focus group participants noted a perception that African Americans were a disadvantaged group who could and would collectively cope with adversity. Older participants were likely to suggest continued endorsement of these cultural beliefs. Such beliefs might inhibit mid-life and older African American caregivers from seeking assistance outside their family to address personal stress or other difficulties. However, less is known about the specific role of community-based behavioral interventions in coping for both rural and African American custodial grandparents, in other words how do community-based behavioral interventions help or hinder stress and coping for underserved custodial grandparents? [83, Rank 1]

Race, Ethnicity, Gender

It is well documented that custodial grand parenting with regard to race and ethnicity is an event with lasting implications for all aspects of the person's life, much like becoming a parent or primary caregiver for an older adult, but with additional characteristics related to the nature, impact, and consequences of the experience. For example, many custodial grandparents have increased psychosocial as well as financial stressors as a result of the caregiving role; in addition to an increase in physical health problems.

Because of the significant needs associated with custodial grandparenting, several authors have called for the development of interventions for custodial grandparents that emphasize addressing the multiple needs of the caregivers such as custody concerns, social support, financial stress, emotional well-being and physical well-being. Unfortunately, few interventions exist in the area of custodial grandparenting. Those interventions that do exist have demonstrated some improvements for custodial grandparents, particularly in the area of social support; however, these i***nterventions lack a cohesive theoretical approach to creating and maintaining significant-behavior change.*** Additionally, many of the

interventions are support groups that are poorly funded and lack community-based support. As the number of custodial grandparents increases, concerns about the stress they experience and the social support they receive have been noted. Despite the past decade of research on custodial grandparenting, few interventions have been designed and tested specifically for the unique needs of this underserved population. Developing community-based behavioral interventions are a critical need, for improving grandparents' emotional, physical, and financial well-being, particularly African American and rural custodial grandparents. [81, Rank 1]

Prospective grandparents were screened by determining the number of grandchildren they were raising and their ages, the reason they were caring for the child, whether formal or informal custody was obtained, residency in one of the participating counties and whether drug or alcohol was being used by the grandparent.

Lesbian, Gay, Bisexual and Transgender (LGBT)

There are broadly two ways of considering the obligations and entitlements of LGBT grandparents. The first straightforwardly considers the welfare of the child: where involvement with grandparents serves the welfare of the child, then this is a reason to protect and encourage grandparent-grandchild relationships. This formulation is consistent with the paramountcy of the welfare of the child in law and policies in the UK, much of the European Union and Australia, but says more about the rights of children than it does about the entitlements of grandparents. It does not mark out grandparents for special entitlements: the same argument could be used to promote contact between the child and anyone else with whom that child enjoys a beneficial relationship.

The second kind of claim is that LGBT grandparents by virtue of being grandparents are entitled to form a relationship with their grandchildren. This sort of claim suggests that grandparents can, as it were, reach over the heads of parents to their grandchildren, and may even be able to press a claim for contact when the grandchildren resist (presuming that it is not demonstrably contrary to the child's interests). Such a claim would give weight to the sense that grandparents should be the preferred carers for children if their parents are unable to fulfil their responsibilities, and it may enable grandparents who have no existing relationship with their grandchildren to initiate contact. This is significant

since the first kind of argument – the welfare of the child argument – does little to distinguish between grandparents and anyone else. A child may form a significant relationship with any adult – family member or otherwise – the cessation of which might be detrimental; but (parents aside) not just any adult can argue that it may be beneficial to a child to begin a relationship with him. If it is thought significant to the welfare of a child to have access to, and a relationship with, grandparents specifically, then this marks out grandparents for special treatment. To this extent, at least some of the sorts of claims made by grandparents appealing to the welfare of the child include an assumption that as grandparents they have special entitlements viz their grandchildren. Whilst claims by grandparents will rarely trump the welfare claims of children, they may undermine the authority of parents. [90, Rank 3]

Self-Governance and Delegation

Although a variety of services were available to help grandparents take care of grandchildren, few grandparents understood how to access the system. This fact was emphasized by one grandparent stating, "I have difficulty in accessing the services." Another grandparent went on to state, "We need to know the requirements, eligibility, and how you access the system." One grandparent pondered, "Where do we go for help and how do you access agency resources?" Other comments included the burden falls on the grandparent, and, "I don't have no type of insurance to take care of medical needs and I have four grandkids that I am raising." As the grandparents discussed difficulty accessing resources, they went on to share issues related to legal assistance.

Grandparents were asked to discuss their interactions with legal assistance services. Grandparents often find themselves in need of legal assistance and resources regarding custody and adoption. They shared similar concerns such as, "I needed help in understanding how to use the law, from the state, up to the federal level, what is the responsibility of the extended family," and "I need assistance in getting temporary custody that will give me rights." Another grandparent went on to comment, "Grandparents cannot get custody from the parents and it is hard to request child support." One grandparent shared some insight into interaction with a lawyer stating, "It helped to have a lawyer acting on the child's behalf." As noted in the comments, grandparents repeatedly stated

that all grandparents need legal help. [112, Rank 3]

Geriatrics and Long Term Care

Continuously married adults are less likely than unmarried adults to enter long-term care facilities, demonstrating the salience of marriage in protecting against long-term care facility use. ***Those in non-marital partnerships and remarriages have similar likelihoods as continuously married adults of entering long-term care facilities, suggesting that it is not continuous marriage per se but rather the presence of an intimate partner that is protective and supportive in later life.*** While studies of younger adults and non-marital partnerships find that partnered adults are generally disadvantaged compared with married adults, some study supports recent studies that find that partnership and marriage provide similar benefits and resources at older ages. Regarding remarriage, remarriage is an incomplete institution, offering fewer benefits such as lower social support and fewer economic resources than continuous marriage. This may no longer be the case, at least with respect to remarried adults' long-term care facility use. One possible reason for these shifts is that as non-marital unions and remarriages become more common, there is comparatively less selection into these statuses than previously. [93, Rank 2]

Second, by disaggregating unmarried adults into partnered, widowed, divorced, and never married adults, we are able to see that of these groups, the never married are at the greatest risk of being admitted into a long-term care facility, suggesting that never married adults face the most obstacles to aging in place. Contemporary studies of health and relationship status find that the never married do not experience a morbidity disadvantage compared with those who are currently married whereas there is a morbidity disadvantage for divorced and widowed adults. Results suggest that this advantage does not extend to long-term care facility use, either because the never married never received the health, economic, and social benefits of marriage—including the social protection of having children—or due to unobserved selection factors. Further, among men, widowed adults exhibit a lower risk of long-term care admission compared with divorced adults, indicating that divorce may be more disruptive than widowhood, perhaps particularly in regard to economic resources

which are the most important factors in explaining long-term care use differences. [33, Rank 3]

The Framework for Professional Nursing Practice in Long Term Care

Despite the many structural and social changes in the long-term care of older adults over the past century, one constant remains: in every nursing home in America, there are people who would benefit from the knowledge, skills, caring, and leadership of professional nurses. Today people who live in nursing homes have more health problems and need greater assistance with activities of daily living than those of past generations. From an organizational standpoint, nursing homes that employ larger numbers of RNs receive fewer deficiencies on annual surveys and are involved in fewer lawsuits. Job turnover among RN staff is associated with worsening of quality of care measures for residents. Without the leadership of professional nurses, people living in nursing homes suffer many negative consequences, such as pressure ulcers, unexpected weight loss, increased urinary catheterization, and a decline their ability to complete activities of daily living.

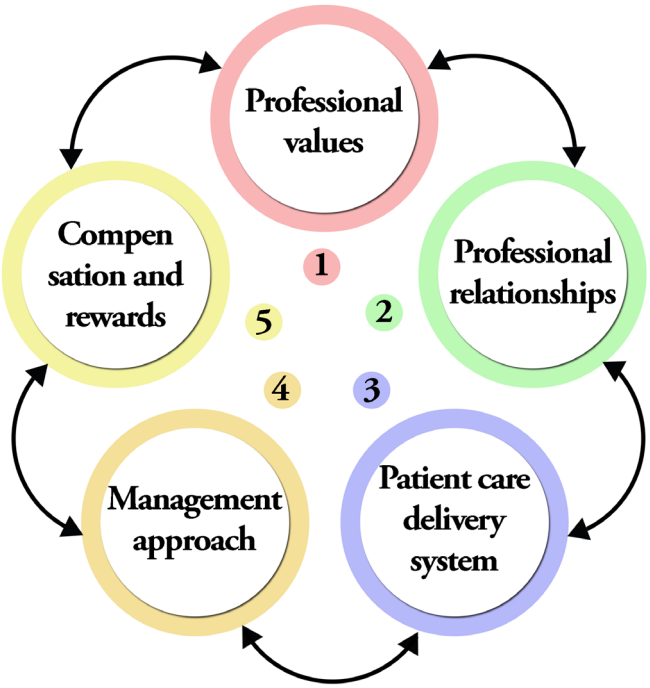

Figure 20: Elements of Professional Practice

Yet, in most nursing homes, the professional nurse is an endangered position. Registered nurses make up a small percentage of the total number of direct care workers in nursing homes. ***Many of these RNs are in administrative positions with little day-to-day contact with residents, families, and caregiving staff.*** Further, most professional nurses in nursing homes have not received specialized training in the care of older adults. The director of nursing often has not earned a bachelor's degree or received training in organizational leadership or business management. As a result, nursing home residents often do not experience the health outcomes they might achieve if they received excellent geriatric nursing care from professional nurses. In

recent years, excellence in elder care has become a recurring theme in the gerontological literature. [79, Rank 2]

Professional practice models (PPM) empower registered nurses to deliver higher quality health care by changing how nursing care is provided in an organization. Researchers called professional practice models "a system -structure, process, and values that supports registered nurse control over the delivery of nursing care and the environment in which care is delivered". When RNs implement a Professional practice model in an organization, they create an innovative system for career advancement and influence healthcare policy and practice at the institutional level. Among the organizational benefits of Professional practice models are improved patient care outcomes and a modest savings in some cost effectiveness measures. While most Professional practice models achieve similar goals, it is important to note that the formats that these innovations assume in clinical settings are always site specific and context driven. However, while Professional practice model formats differ between healthcare institutions, most researchers report that registered nurses experience more autonomy and control over nursing practice, increased job satisfaction, and lower turnover, following the implementation of a professional nursing practice in their facilities.

While registered nurses have implemented Professional practice model in acute care hospitals, few comparable efforts have been made in long-term care. However, two exemplars of professional nursing practice in extended care environments suggest the potential benefits of such models in nursing homes. The first is a professional nursing model instituted during the 1960s–70s by Lydia Hall and colleagues at the Loeb Center for Nursing and Rehabilitation at Montefiore Hospital and Medical Center in Texas. Over a 15-year period, registered nurses in this facility shifted from a task focused "caretaking" perspective to a professional orientation that emphasized the healing role of registered nurses. Personal qualities cultivated among the nurses included self-direction, self-awareness, professional judgment, creativity and intelligence paired with basic knowledge, and a service ideal. Professional behaviors asserted by the RNs included a primary patient-centered focus of care with 24-hour accountability, dynamic action responsive to patient needs rather than institutional routines, nurse-to-nurse peer relationships, a teaching orientation, and the "capacity to re-perceive knowledge and/or rearrange it to develop new theory" to improve patient

care. Organizational capacities expanded to create a "liberating system which fosters democratic care" including programs to support the practice transfer and implementation of nursing knowledge, clinical recordkeeping systems to document nursing care practices and monitor health outcomes, and forums to enhance interdisciplinary communication and cooperation. Registered nurses working within this professional model gained confidence in their clinical skills and leadership abilities. As one nurse wrote, "Here the nurse is the unifying member of the health team. In fact, at Loeb nursing is the chief therapy experienced by our patients; medicine and allied disciplines are supportive services".

The second example of professional nursing practice from long-term care is the nursing shared governance model implemented at the Iowa Veterans Home (IVH) in Marshalltown, Iowa. Prior to implementation of shared governance, authority for resident care rested with physicians and the administrator rather than the nursing staff. The few RNs employed by the facility had little input into day-to-day resident care practices, long-range care planning, or institutional policymaking. While IVH philosophy espoused "a belief in humanistic care" in actual practice, resident care was "mostly custodial in nature" with routine and staff convenience taking precedent over residents' needs and preferences. A nursing shared governance model was designed to achieve three goals: 1) maximizing the clinical functions of registered nurses; 2) creating an organizational environment that fostered the professional development of registered nurses; and 3) developing an organizational culture that facilitated the clinical decision-making of registered nurses.

To attain these goals, the RNs often met as a group to discuss resident care and practice issues, to learn from one another's expertise, and to create a shared vision of professional nursing and resident care. As they wrote of these meetings, "All nurses had the opportunity and obligation to use their special knowledge in the collective decision-making process". With the strategic leadership of an affirming and supportive director of nursing, the nurses moved from task-focused resident care to a fully enacted shared governance model over four years. The most critical transition the nurses made was a change in their views of nursing. Over time, the registered nurses grew from thinking of themselves as employees who followed other people's orders to viewing themselves as colleagues who had professional autonomy and accountability for their own clinical practice. After

implementation of shared governance, IVH residents experienced improvements in several indicators of quality of care, including a decrease in the use of urinary catheters and physical restraints and a decrease in the prevalence of pressure ulcers and urinary incontinence.

Although nurses develop professional practice models in a particular organizational context, there is some agreement on the constitutive elements of PPMs in general. Researchers noted five key elements, or subsystems, underlying such models: 1) professional values; 2) professional relationships; 3) patient care delivery system; 4) management approach; and 5) compensation and rewards. While similarities among PPMs are important, studies also noted that each PPM contains "unique qualities and programs" reflecting the organizational resources, institutional priorities, and professional values of the people who create it. Professional nurses may discover the essential components of "their" PPM through designing, implementing, and sustaining the model in its real-world context. For example, researchers presented a case study of an enhanced professional practice model (EPPM) in a 53-bed rural hospital. The RNs in this facility desired increased autonomy in routine patient care decisions, more collaborative practice with the medical staff, better continuity in patient care, new opportunities for continuing education, and increased compensation and recognition. The nurses collaborated with administrators, physicians, and others on the interdisciplinary team to introduce programs such as standardized admission orders, clinical pathways, and post-discharge follow-ups; a nurse assistant position for the delegation of certain patient care activities; self-scheduling; a new nurse preceptorship program; specialty certification; a peer evaluation process; and nurse-to-nurse consultation. Not all of the programs were successes, but most nurses were proud of their contributions to the EPPM project. As one nurse reported, "I like the things that have developed from EPPM. You've given us or showed us how to develop good tools for ourselves".

While few studies have examined professional nursing practice in long-term care, key points on the usefulness of professional practice models in nursing are apparent in the literature. First, no single professional practice model will address the varied resident care problems and administrative challenges of all healthcare settings. Second, PPMs are site-specific innovations that registered nurses design, implement, and sustain to address the particular health needs of patients or residents in the organizational

context of their workplace. Third, implementation of a nursing practice model takes time, often years, and requires considerable preparation of the organization, the nursing staff, and their interdisciplinary colleagues. Finally, a professional nursing model is not a practice innovation that an administrator or director of nursing can force on nurses. Rather, registered nurses must model professional nursing practice themselves. It is through a full commitment to and everyday involvement in creating and sustaining a nursing practice model that responds to the strengths, needs, and challenges of residents, families, employees, and the organization that RNs become professional nurses. [104, Rank 4]

Soft Skills of Care Givers in Long Term Care Facilities

As already found in the literature, soft skills of caregivers such as empathy, kindness, punctuality or reliability are most important for care-recipients. This is also in line with a recent study showing that individuals in need for care wish to build a relationship with the caregiver. Moreover, the caregiver should do their tasks and activities with calm and in a leisurely way. ***Besides, the high preferences for a small nursing team might be explained by theperception of individuals that small teams are associated with deep personal relationships as well as soft skills such as trust or feelings of emotional attachment which are highly important for individuals in need for care.*** Compared with soft skills, we found that other factors such as 'same cultural background' and 'same gender' are far less important. This might be mainly explained by the fact that these preferences, unlike soft skills, do not reflect basic caregiving needs.

Being female was positively associated with preferences for 'same gender' and preferences for 'English language'. This is also in line with previous studies reporting that women prefer a general practitioner of the same gender. Moreover, this is also in accordance with a previous qualitative study among 60 older lesbian, gay, bisexual and queer (LGB) individuals in which Westwood found that older LGB women might be more likely to prefer gender-specific care. Our findings might be explained by the fact that women experience increased levels of stress when getting intimate care by men. In addition, women might fear that quality of care and conversations suffer when caregivers have poor skills in the German language. This might explain why preferences for 'German language' were positively associated with being female.

Living with partner was positively associated with preferences for 'same gender' and preferences for 'same cultural background'. Consequently, individuals living with partner might be more afraid of care provided by the opposite gender. This might be explained by the fact that individuals in old age living with partner could not imagine that other individuals apart from their wife or husband provide assistance with basic activities of daily living such as toileting or bathing. In addition, preferences for 'same cultural background' were positively associated with age and East Germany. These associations might reflect differences in cultural values. Different preferences for 'same racial/ethnic group' regarding health care providers were also reported among different ethnic groups (Asian-Americans compared to non-Latino Whites).

The non-significant associations between 'orderly appearance', 'empathetic, kind', 'punctual, reliable' as well as 'small nursing team' and included predictors might be mainly explained by the fact that nearly every individual wishes to have them in the future. Thus, these preferences for characteristics of professional caregivers might be generally seen as basic (human) needs. The positive association between preferences for 'enough time' (going beyond physical care, e.g., for conversation) and being female, higher education as well as living with partner or spouse might be explained by the greater need for social interactions in these groups.

Furthermore, while the positive association between involvement in the issue of need for care and preferences for 'enough time' might be explained by the fact that a high involvement in this issue is associated with a higher preference for soft skills of caregivers, the positive association between not providing care and the preferences for 'enough time' was quite unexpected and might be explained by unobserved factors associated with providing informal care (for example, personality traits). In addition, this association might be explained by the fact that individuals who already provided informal care have a more realistic perspective on life in a long-term care setting. Consequently, these individuals might be more aware of the organizational and time constraints faced by caregiver and that "enough time" (not closely related to caregiving aspects, e.g. time for conversations) will likely place additional burden on caregivers. However, further research is required to clarify this relationship.

It should be highlighted that data were derived from a large, population-based sample among individuals in old age.

Moreover, numerous important independent and dependent variables were captured. For example, adjusting for numerous potential confounders, we provide novel evidence that region (West and East Germany) is differentially associated with preferences for 'same cultural background'. However, our study also has some limitations. This is a cross-sectional study. Therefore, temporal relationships cannot be determined. Future studies aimed at examining the long-term impact of predictors on long-term care preferences are needed. In addition, upcoming studies should validate the instruments used. In addition, the self-reported data might suffer some degree of inaccuracy. [12, Rank 3]

Risks Involved in Long Term Care

Long-term care (LTC) is one of the largest financial risks facing the elderly today, yet very few people—13 percent of current 65 year olds—insure against the risk. This lack of insurance coverage has spurred much work that tries to explain this phenomenon. It has also spurred public policy into action, with 24 states and the District of Columbia offering tax breaks for private long-term care insurance (LTCI) purchases as of 2008. These policy changes, however, have not led to a widespread increase in coverage. The Patient Protection and Affordable Care Act also included a now-defunct program, the Community Living and Supported Services (CLASS) Act, which would have created a new government-run LTCI pool.

> **"Researchers have shown that registered nurses (RNs) make a measurable difference in the health outcomes of older persons. When RNs care for people living in nursing homes, fewer restraints are used, residents develop fewer infections, and they are admitted to hospitals less often."**

In other domains of catastrophic insurance, studies have shown that after individuals experience the insurable risk, they are more likely to purchase insurance against that risk in the future. This response could be explained by behavioral heuristics, such as an increase in the salience of the risk, or by an increase in information about the insurable risk.

In the LTCI context, lack of experience with Long Term Carecould help explain the low demand for insurance. Experience could help overcome behavioral biases since people tend to dislike and delay discussions

about becoming frail and needing assistance. In addition, experience could fill several potential information gaps in the LTCI context: the likely need for Long Term Care; the expense entailed in getting such care; the gaps in one's existing insurance coverage for Long Term Care; or, one's family's willingness to provide informal care. Any of these sources of incomplete information would lead to lower than expected LTCI purchases. Previous research has provided evidence of incomplete information in at least two of these domains. Studies report that most elderly believe that Long Term Care expenses are covered by Medicare. Further, it was found considerable underestimation of the costs of nursing home care among individuals age 45 and older. While researchers highlight limited consumer understanding of both the insurance product and the expenditure risk as one of the top five reasons for low LTCI demand, there has been no empirical testing, to our knowledge, of the extent to which lack of information depresses LTCI purchase in the United States.

In the specific domain of risk perception and insurance, previous work has shown that individuals who experience the insurable risk are more likely to purchase insurance against that risk in the future. We can find that individuals who experienced property damage in a prior natural disaster are more likely to purchase flood insurance. Similarly, flood insurance purchases increase in areas that experienced a recent flood found an increase in the perceived need for earthquake insurance after the Loma Prieta earthquake, finds an increase in the demand for insurance following earthquakes more generally. Studies find an increase in the stated demand for disability insurance among individuals who are informed about disability risks.

In the Long Term Care literature, some studies have explored how knowledge about Long Term Care or individual health risks impact LTCI demand behavior. For example, studies find that individuals who have a family member or friend that needs Long Term Care are more likely to purchase LTCI, and find that adult children are more likely to want to buy LTCI for their parents after being informed about the population average risks and costs of Long Term Care. Studies find that individuals' beliefs about the likelihood of not being able to live independently due to health problems were strongly correlated with LTCI coverage in the RAND American Life Panel. Research formulates a theoretical model that shows individuals might wait to purchase LTCI to obtain more information about their own

probability of becoming disabled as well as the costs of disability and associated care. Our paper contributes to this literature by examining how actual experience with LTC via a parent or in-law's use of nursing home or informal care impacts LTCI purchase behavior, exploiting variation in the relationship to the care recipient, type of care received, and who provided care.

Disentangling why experience with Long Term Caremattters in forming expectations and LTCI purchase decisions is often difficult with secondary data, but important in order to make policy recommendations. [112, Rank 3]

Rational Expectations of Elderly

The rational expectations model assumes that individuals form expectations using all available information and make optimal decisions that are based on (and consistent with) these expectations. ***When new information is learned, expectations about the future are updated, typically assumed in a Bayesian manner.*** The rational expectations model is consistent with the self-regulation model. The self-regulation model posits that individual understanding of disease is based on the individual's rationalizations about its causes, consequences, timeline, trajectory, prognosis, and their ability to control, treat, and prevent the illness. ***Individual understanding is informed by beliefs, experiences, family, friends, health care practitioners, and the media.*** Importantly, both positive and negative experiences or information can alter one's beliefs, coping strategies, and behavior.

The rational expectations model posits that Long Term Care use by parents and parent-in-laws could impact one's knowledge of Long Term Care risks and costs. Under this framework, it can be hypothesized that Long Term Care use by the generation will have an information spillover effect and change the insurance status of their adult children. If individuals are already fully-informed about the risks they face and their associated costs, then Long Term Care use by parents or in-laws will have no effect on their own expectations about future use or their financing plan. However, if individuals learn during their parents' or in-laws' Long Term Care spell, expectations about future care use, lifetime income, and preferences for different types of care delivery may evolve, and the decision to purchase insurance to prepare financially for these future needs may change.

Whether a parent or in-law receives formal or informal care could impact an

adult child's expectations or preferences about his or her own future care needs. The type of care received may provide information about the costs of care, the willingness of family to provide informal care, and the ability to meet Long Term Care needs in an informal setting. As a result of providing informal care to a member of the previous generation, an individual may experience and learn about caregiver burden, which has many definitions in the gerontology literature or conversely, caregiver gain, such as role satisfaction, improved relationships with a parent, and the knowledge that one has fulfilled a familial duty. Providing care to a parent or in-law may also provide a signal that an adult child expects his or her own children to do the same (i.e. the demonstration effect).

One complicating factor is that parents' or in-laws' use of Long Term Care might impact one's lifetime income expectations through changing the size or the probability of receiving a bequest; thus, we also examine how expectations about inheritance receipt vary with Long Term Care use in the higher generation. In other words, individuals gain new information from the use of Long Term Care and update their own expectations, which could result in a change in behavior in the form of purchasing Long Term Care insurance [117, Rank 4]

Intimate Relationship Status in Long Term Care

Married adults and unmarried adults are heterogeneous groups. As in past research, ***we can confirm that continuously married adults are less likely than unmarried adults to enter long-term care facilities,*** demonstrating the salience of marriage in protecting against long-term care facility use. Research demonstrate that those in non-marital partnerships and remarriages have similar likelihoods as continuously married adults of entering long-term care facilities, suggesting that it is not continuous marriage per se but rather the presence of an intimate partner that is protective and supportive in later life. While studies of younger adults and non-marital partnerships find that partnered adults are generally disadvantaged compared with married adults, some study supports recent studies that find that partnership and marriage provide similar benefits and resources at older ages. Regarding remarriage, studies proposed several decades ago that remarriage is an incomplete institution, offering fewer benefits such as lower social support and fewer economic

resources than continuous marriage. These findings show that this may no longer be the case, at least with respect to remarried adults' long-term care facility use. One possible reason for these shifts is that as non-marital unions and remarriages become more common, there is comparatively less selection into these statuses than previously.

Second, by disaggregating unmarried adults into partnered, widowed, divorced, and never married adults, we are able to see that of these groups, the never married are at the greatest risk of being admitted into a long-term care facility, suggesting that never married adults face the most obstacles to aging in place. Contemporary studies of health and relationship status find that the never married do not experience a morbidity disadvantage compared with those who are currently married whereas there is a morbidity disadvantage for divorced and widowed adults. The results suggest that this advantage does not extend to long-term care facility use, either because the never married never received the health, economic, and social benefits of marriage—including the social protection of having children—or due to unobserved selection factors. Further, among men, widowed adults exhibit a lower risk of long-term care admission compared with divorced adults, indicating that divorce may be more disruptive than widowhood, perhaps particularly in regard to economic resources which, as we find in this analysis, are the most important factors in explaining long-term care use differences.

Third, the degree to which relationship status is related to long-term care use is importantly moderated by gender and race/ethnicity. Confirming previous studies being, unmarried places men at greater risk for long-term care use than women. By looking specifically at subgroups of married and unmarried adults, we demonstrate that these gender differences also exist at this more nuanced level. The gender differences are even more exaggerated when considering only long-duration stays, suggesting that men rely heavily on their spouse or partner to be able to remain in their own homes and communities long term. Building further on these studies, It is seen that divorced, widowed, and never married men's greater risk of long-term care facility use is not fully explained by the health, economic, or social variables, thus indicating the need for future research to identify these pathways specific to unmarried men.

Economic resources are most responsible for explaining the disparity in long-term care use between continuously married adults and unmarried adults,

particularly for women. Economically advantaged older adults often choose to age in place, rather than in long-term care facilities and studies indicate that this option is perhaps more available to married adults than to other groups, with never married adults most disadvantaged. Married and partnered adults are better able to age in place also because they have their spouse or partner to rely on for support, indicating that financial resources are a necessary but not sufficient condition. Interventions which seek to improve widowed, never married, and divorced adults' financial well-being and to reduce the cost of remaining in the community will likely also reduce the risk of long-term care use and promote aging in place for unmarried and unpartnered adults. For example, the Cash and Counseling program provides older adults with a monetary allowance, which reduces incidences of unmet need, and the Community First Choice option in the Affordable Care Act encourages states to provide home- andcommunity-based services and supports to eligible adults. Relationship status disparities in long-term care use and institutional bias in Medicaid long-term care policies can be reduced through programs which seek to expand Medicaid community-based waiver programs for older unmarried adults who are eligible for a long-term care facility but prefer to remain in the community. An important next step for research is to evaluate the impact of Medicaid's rules allowing special income and asset protections to married couples but requiring non-married couples and unmarried adults to be impoverished before they are eligible for long-term care assistance (U.S. Department of Health and Human Services, 2005). [155, Rank 5]

As family structures continue to change, with more adults entering and exiting marriages and other relationships multiple times over the life course, it is increasingly important to use multiple categories of relationship status and to place these indicators carefully within their health, economic, and social contexts. ***Non-marital relationships and remarriage may offer protection to older adults similar to those provided by marriage. Specifically, within the context of long-term care, remarried and partnered adults seem to be as able as continuously married adults to avoid long-term care facilities and age in the community.*** Researchers should continue to examine the importance of remarriage and non-marital partnerships on later-life outcomes, a topic largely understudied despite its demographic prevalence. Our study also draws attention to the vulnerability of divorced, widowed, and never

married older adults whose economic disadvantages and, to a lesser extent, social isolation may decrease their ability to age in place.

The host of issues confronted here are critical as state and federal governments face the so-called "silver tsunami" being generated by aging Baby Boomers and will continue to be important with the aging of even newer

cohorts. The Baby Boomer cohort has less access to traditional informal caregivers (e.g., children and spouses) than previous cohorts, and this retreat from marriage and declining fertility is even more pronounced among younger cohorts. But as of yet, little is known how these demographic and societal changes, along with increased desires to age in place and avoid institutional care, will matter for long-term care use among newer cohorts. Clearly, understanding the many ways in which intimate relationships influence options in long-term care merits increased attention in research and policy to meet the growing needs of an aging population. [77, Rank 2]

Multiple Chronic Conditions and Long Term Care Dependence

Increased life expectancy and the aging of the baby-boom generation will lead to a higher number of older adults, and this comes with the need to manage chronic conditions that are more common in older age. One of the main challenges is and will be the management of multiple chronic conditions. ***Multimorbidity is becoming the normal situation rather than the exception in the older generation.*** But while the number of scientific papers focusing on multiple chronic conditions has increased significantly during recent decades, treatment guidelines still focus on single diseases and do not capture the complexity of multiple chronic diseases or consider possible prioritization of treatment options.

Compared with single diseases, multimorbidity has been shown to have a negative impact on a person's health and on the continuity of primary care. People with multimorbidity die earlier, even if this correlation is not always clear. chronic diseases are also known to be prevalent, especially in nursing homes; however, the impact of these conditions on long-term care dependency remains unclear. Previous studies have shown a correlation between multimorbidity and functional impairment, but the definition of functional impairment and of long-term care dependency differs between studies. Also, the definition of multimorbidity varies greatly between studies. Multimorbidity is the co-existence of at least

> "In the Texas statutory insurance system, long-term care insurance exists parallel to statutory health insurance, covering both institutionalized and ambulatory long-term care services."

three chronic conditions over a time period of at least 1 year.

Health insurance is mandatory in Germany. In 2013, the majority of the population is insured in one of the 134 statutory health insurance schemes; 11% are covered by private health insurance. A person can apply for long-term care coverage and will be evaluated based on their performance in activities of daily living (ADL). If care dependency is shown, the amount paid by the insurance depends on the severity of dependency rated on three levels. The level of care is determined by an expert rating at the home of the applicant and can be re-evaluated at a later point in time. Until a person is assigned to a care dependency level, he or she cannot make claims for long-term care insurance.

Those with multiple chronic conditions had a significantly higher risk of becoming long-term care dependent in a 5-year period. Specific diseases showed a strong impact on care dependency, namely dementia and Parkinson's disease. This correlation between dementia and functional dependency/long-term care dependency is in line with previous results. Stroke is also strongly correlated with care dependency; our results therefore point to a higher influence of neurological diseases on care dependency, compared with another study highlighting the influence of cerebrovascular disease, arthritis, and coronary artery disease.

This influence of neuropsychiatric diseases is also reflected in the high risk for patients in the Neuropsychiatric symptoms disease cluster, which includes dementias and Parkinson's disease, but also other related diseases such as depression, stroke, and urinary incontinence. Researchers were able to show that, with every additional disease, the risk of becoming long-term care dependent increased by over 6% over the 5-year period. Research also showed a higher proportion of people with disability with more diseases, ranging from 4% with no condition to 28%of those with four or more, but higher numbers of chronic conditions were not distinguished. Research analysis also showed that all three of the identified clusters have a significant influence on care dependency.

As ***multimorbidity is associated with both age and sex,*** researchers included an interaction term in analysis as a control

variable. This was necessary to control for the fact that the pattern of multimorbidity is different for men and women at different ages. For instance, ***for both men and women in the age group 65–74 years, the HR for becoming long-term care dependent is 0.4, but for people aged 75 years and older, it is 3.3 for men and 3.9 for women.*** This interaction term does have a significant effect on long-term care dependency, independent of the single diseases or the number of diseases. However, this effect is rather low when controlled for other variables. ***Multimorbidty per se showed an association with care dependency even when controlled for the diseases most associated with care dependency.*** However, we could only adjust for the top five diseases to avoid multicollinearity in the regression model.

A major concern about comparing other studies with these results is the different definition of dependency and also the different inclusion of diseases and definition of co- or multimorbidity. ***A 2003 review identified 13 different ways of defining co- or multimorbidity - a number that has increased over the last 10 years. A more recent review from the European General Practice Research Network identified 132 different definitions with a large number of sub-specifications.*** Another study also addressed methodological differences, concluding the strong influence of definition on the prevalence of multimorbidity.

The diseases that were seen to have no higher risk for care dependency are also not clinically related to ADL, such as allergies or sexual dysfunction. As decline in ADL is the only factor evaluated for care dependency, this result is not surprising. Researchers decided to keep those factors in the analysis to account for a broader spectrum of multimorbidity. Even if those conditions have no direct impact on long-term care dependency, they can influence the patient's life and possibly their health care utilization habits.. [176, Rank 5]

The Community Long Term care

The community long-term care practice setting offers an important service context for understanding how partnerships may engage in treatment adaptations due to its far reach across the U.S., the need for integrated care for depression, and the real-world pressures faced by busy caseworkers responding to complex client needs. Every U.S. state provides publicly funded community long-term care services, which aim to help

low-income people with chronic conditions compensate for functional disabilities and maintain community residence. Community long-term care systems offer assessment, service referral and linkages, and case management. A range of supportive services may be coordinated by community long-term care, such as in-home personal care, homemaker services, respite, and adult day

Although the community long-term care system is not mandated to respond to depression, many older adults in public community long-term care suffer disproportionately high levels of depression. Despite the potential to reach vulnerable, isolated older adults at high risk of depression, community long-term care services system typically identifies depression in one out of four clients with depression. In most states' community long-term care systems, caseworkers (usually bachelor-level social workers or other human service workers) have large caseloads, lack in-depth mental health training, and have minimal access to clinical staff internally. Moreover, clients' high functional disability and low income present competing demands to depression care. While community long-term care has potential for responding to depression in large numbers of socially and economically disadvantaged older adults, very little research has addressed how to improve depression care in the community long-term care setting.

> **"Community long-term care fits as a recommended setting for integrated care because community long-term care has first-contact care, conducts comprehensive assessments tapping the family and community context, and acts as "gatekeepers" for the health, mental health, and psychosocial referrals."**

In the year 2000, to address this gap, academic researchers formed a partnership with a Midwestern state's publicly-funded community long-term care agency, which resulted in over a decade of service systems research regarding depression. The research agenda began in response to the state's administrator's interest in foundational service systems research and clinical epidemiology to understand the prevalence, associative factors, and implications of clients' depression on service use. Epidemiologic and services research informed subsequent pre-implementation and intervention developmental work, such as focus

groups with stakeholders and in-depth client interviews. Three primary challenges to transporting empirically supported depression treatment to community long-term care setting can be summarised as below

- *Depression would have to be assessed within the context of competing demands unique to this setting*
- *The system's resource constraints required targeting depression care to the highest priority clients*
- *The fragmented system of care that extends across multiple settings required development of communication protocols. Knowing these local challenges from prior work, the partnership next sought to incorporate broader research knowledge of effective treatments for depression.*

Extensive evidence supports the use of collaborative care models for treating depression among older adults within primary medical care settings. Core components of collaborative care include a depression care manager who has psychiatric supervision, a stepped care algorithm, and regular tracking of depression outcomes by a systematic screen. One treatment model provided the basis for adapting collaborative depression care to community long-term care. The IMPACT model located an on-site depression care manager in primary care settings to coordinate treatment of major depression or dysthymic disorder. [180, Rank 4]

Quality of Care in Long Term Care Facilities in Texas

There has been an increasing interest in studying the care provided in nursing homes, stimulated by clear evidence of variation in utilization, quality of care, outcomes, and cost. However, there are several barriers to conducting national studies on these issues. One important barrier is the availability of a robust method for differentiating residents with a long term care (LTC) stay from those with a skilled nursing facility (SNF) stay. SNFs typically provide rehabilitation nursing services and medical care for short stay residents immediately following hospitalization. Skilled nursing facility is covered 100% by Medicare Part A for eligible patients for the first 20 days following hospitalization, and 80% for days 21–100. Community discharge is the primary objective of skilled nursing facility, and is a quality measure identified

by the Centers for Medicare and Medicaid Services (CMS). Long term care services are often custodial care, and are covered by Medicaid, private pay, or long term care insurance.

The Omnibus Budget Reconciliation Act (OBRA) of 1987 mandated that all nursing homes receiving Medicare or Medicaid payments complete a standardized assessment of the physical, cognitive, emotional, and functional health of their residents, resulting in the Minimum Data Set (MDS). However, MDS does not have a specific variable differentiating long term care residents from those in a skilled nursing facility. Most nursing facilities provide both skilled nursing facility and long term care services, and patients can transition from skilled nursing facility to long term care while retaining the same room and bed. Previous studies have developed algorithms using administrative claims data to identify nursing home stays and to differentiate long term care residents from those with a skilled nursing facility stay.

The current CMS quality reporting program for nursing homes uses length of stay to differentiate short stays (≤100 days) from long stays (> 100 days), and uses only MDS data. This method can conflate services in a skilled nursing facility with services in a long term care bed. For example, a patient who is discharged from a hospital to skilled nursing facility for a 20 day stay, followed by a 2 month stay in a long term care bed at the same facility, is classified as short stay. Quality measures generated for this stay are attributed to skilled nursing facility care. Conversely, quality measures related to a patient who spends 80 days in a skilled nursing facility followed by 40 days in long term care would be attributed solely to the long term care services. Obviously, fair quality measures are important for both skilled nursing facility and long term care settings, which depend on accurate differentiation between the two sites. [76, Rank 5]

Utilization of Electronic health records (EHR) in Long Term Care facilities in Texas

Long term care (LTC) is an important sector in the healthcare industry; however, the adoption of electronic health record (EHR) systems in long term care facilities lags behind that in other sectors of healthcare. This study examines the adoption and utilization of Electronic health records in long term care facilities in Texas and identifies the barriers preventing implementation of Electronic health records.

A survey instrument was mailed to all Texas long term care facilities between October 2010 and March 2011. The survey found that in Texas, 39.5 percent of long term care facilities have fully or partially implemented Electronic health records systems and 15 percent of long term care facilities have no plans to adopt Electronic health records yet. There is significant variation in the use of Electronic health records functionalities across the long term care facilities in Texas. In the long term care facilities, the administrative functions of Electronic health records have been more widely adopted and are more widely utilized than the clinical functions of Electronic health records . Among the clinical functions adopted, the resident assessment, physician orders, care management plan, and census management are the leading functions used by the long term care facilities in Texas. Lack of capital resources is still the greatest barrier to Electronic health records adoption and implementation. Policy makers, vendors, long term care administrators, educators, and researchers should make more effort to improve Electronic health records adoption in long term care facilities.

The aging of the US population and the projected growth of the oldest age bracket (85 years and older) will have a major effect on the demand for and supply of long-term care (LTC) services and on the resources needed to provide those services. Seniors themselves consume more than 50 percent of total healthcare services and dollars in this country. long term care providers care for the fastest-growing segment of the population and account for a high proportion of the healthcare dollars spent. The patients in long term care experience frequent transitions, which may create gaps in quality and opportunities for errors.

An electronic health record (EHR) system has the potential to reduce errors, improve quality of care, and deliver healthcare more efficiently. long term care providers can "achieve an increase of 37 percent in administrative productivity" by using Electronic health records systems over time. Although health information technology (HIT) applications that positively affect both quality of care and patient safety currently exist, they are not widely used in current LTC settings. long term care facilities lag in Electronic health records adoption, compared to the other sectors of healthcare. Part of the reason for this is that current HIT agendas and strategies focus more on acute and ambulatory care, and long term care suffers from relative inattention. Studies summarized the impact of Electronic health records on the quality, efficiency,

and cost of medical care from 74 journal articles at four benchmark institutes; however, none of the studies included a long term care setting. Furthermore, most Electronic health records are intended primarily for acute care facilities, so long term care facilities face unique challenges in using Electronic health records, such as different documentation needs for facilitating preventive measures, different starting doses of medications, and special reporting needs. Utilization of Electronic health records in long term care facilities does not initially save time for clinicians. long term care settings are often intensely interdisciplinary and holistic in their approach to their patients and residents. Therefore, the challenges and opportunities for promoting Electronic health records adoption and utilization in long term care facilities are greater than ever.

Policy makers need reliable and valid data on Electronic health records adoption rates in long term care facilities to assess movement toward the goal of promoting Electronic health records adoption. If national cross-sectional data were available, we could have a "big picture" of national Electronic health records adoption and utilization status in long term care facilities. If time-series data in a state were available, we could analyze the trend of Electronic health records adoption and utilization status in long term care facilities in that state. However, information on Electronic health records adoption in long term care facilities is relatively scarce. In January 2010, the US Department of Health and Human Services (HHS) developed two survey instruments on Electronic health records adoption and use in nursing homes. Unfortunately, no further report was published. Consequently, no national cross-sectional data are available. Several regional surveys, including a 2008 report from Minnesota and a 2007 report from California, are the only Electronic health records adoption and utilization data sources related to long term care. No regional survey has been conducted more than one time to provide time-series data. On the positive side, each of the state surveys contributed a piece of puzzle to the "big picture" of national Electronic health records adoption and utilization status, and set a baseline for these states. Because Electronic health records adoption and utilization has been proposed for decades, no state has the first-mover advantage in Electronic health records adoption. Therefore, we have reasons to assume that Electronic health records adoption status would be homogeneous across the United States, unless a

state has special policies impacting Electronic health records adoption. [2, Rank 5]

Utilization of Available Facilities in Long Term Care

Given the rapid rate of change in the Electronic health records industry and the evolution of Long Term Care facilities in Texas, future studies are necessary to understand the trends in adoption and utilization of Electronic health records . This survey identified important factors for policy makers, Electronic health records vendors, long term care administrators, educators, and researchers to consider in promoting Electronic health records adoption and utilization. First, for policy makers, this survey reiterates the barriers to Electronic health records adoption in long term care facilities. Of those, the top barrier is still the lack of capital resources. This finding shows that the significant capital costs of implementing Electronic health records are still a burden for long term care acilities, particularly those operating close to their financial margins. State and private organizations should work with long term care facilities to address this barrier, and the government has to continue seeking better incentives to solve this challenging issue in Electronic health records adoption. Based on this survey, lack of technical infrastructure is another serious barrier in Texas. This finding may show that the development of IT infrastructure in long term care facilities in Texas deserves more attention. Another barrier, the risk of new state or federal requirements, shows that policy makers should accelerate the establishment of a long-term agenda for Electronic health records regulations to provide a clearer guideline in EHR adoption and utilization.

Although a long term care facility may have the opportunity to use an Electronic health

records system adopted by hospitals, the Electronic health records system may not meet the specific complex and diverse needs of the long term care facility and may therefore be only partially used. Development of an Electronic health records system in a collaborative fashion for long term care facilities should be supported. It is unclear how Electronic health records vendors are prepared to meet the needs of long term care clients. This question should be explored. Although Electronic health records systems have been in existence for decades, the inability to input historical data is still a big barrier to Electronic health records adoption and utilization. Better communication between vendors and long

term care facilities is indispensable for more effective Electronic health records system design and development for long term care facilities. Finally, lack of proven benefits of Electronic health records use is a barrier to Electronic health records adoption and utilization. Researchers should conduct research examining the relationship of EHR utilization to the financial outcomes and quality of care in long term care facilities.

Education and training are the solution to some issues related to Electronic health records adoption and utilization in long term care facilities. First, training more Electronic health records -related professionals is helpful to alleviate the problem of lack of technical support staff. Secondly, even in the current information age, more than 10 percent of long term care administrators have no plans to adopt Electronic health records and do not know the needs and benefits of Electronic health records . Long term care administrators should attend Electronic health records training programs to keep abreast of compliance and technology requirements. Finally, education programs are also necessary for policy makers, who may underestimate the importance of Electronic health records. [67, Rank 4]

Conclusion

The multi-determined nature of the aging process provides a framework for physiological organization by which aging is mediated by multi-system dysfunction and the associated manifestation of heterogeneous, yet inter-related and interacting, behavioral phenotypes. The notion of interacting behavioral phenotypes has been similarly proposed for other aspects of the aging process, such as the integration of aging-related biomarkers into regulatory networks and of interaction networks to identify aging-related genes, proteins, and pathways. However, the phenotypic approach has not previously been given its due attention regarding age-dependent effects in the aging literature. Despite its empirical promise and utility in HIV and aging research, a cautionary note is in order. A schema of separate, singular phenotypes may accurately describe only a portion of the HIV and aging population, and there appears to be heterogeneity within and across groups typically considered homogeneous. We need to evaluate whether there are separate phenotypes with multiple risk factors, a common ultimate cause, both of these, or multiple phenotypes for a separate profile (e.g., frailty) with different

constellations of risk factors, etiologies, and natural histories. Future research needs to build on the evolving ability to distinguish and untangle interacting phenotypes (e.g., cognition from comorbidity, disability from frailty), to refine their definitions and criteria, to develop standardized approaches to screening, and risk assessment, to identify physiological or molecular systems that are dysregulated, and to gain knowledge of interventions that prevent onset of and reverse adverse HIV-related outcomes. [130, Rank 4]

***Important information for post-test is highlighted in red letters, boxes and diagrams.**

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