A Biopsychosocial Approach to an Aging World

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Abstract

Aging is a process that is universal to the human experience. Due to the inevitability of old age, fully understanding the aging process is of great importance. Using a biopsychosocial approach, the factors leading to successful aging will be examined. The influence of diet and exercise will be analyzed to understand its effects on physical and mental health. Psychological influences, including depression, mindset, self esteem, and mental stimulation will be evaluated into their respective roles in the aging process. In addition, the presence of cultural beliefs and social engagements will be considered as stimulants for emotional wellbeing. Due to the great intricacies of aging, it is imperative that the physical, psychological and social influences be taken into consideration as catalysts for healthy aging.
Introduction

Society today is displaying an increasingly prevalent desire for youth. With the media advertising ‘age-defying creams’ and the entertainment industry’s obsession with younger celebrities, it is no surprise that people around the world are vying for a fountain of youth. This cross-cultural deterrence from aging has been increasing ever since the global life expectancy escalated over the past few centuries. According to researchers, “knowledge, science and technology are the keys to any coherent explanation” of the recent mortality rates (Cutler, Deaton, Lleras-Muney, 2006). Life expectancy, or the average amount of time a child today would live if current mortality rates continue, has seen immense progress with the help of developing medicines and treatment options (Roser, 2016). With better sanitation, nutrition, presence of pharmaceuticals, and health innovations, the global life expectancy has nearly doubled from the 16th century to the 21st century (Roser, 2016).

Although the increasing rate of new medical treatments available to the aging population is astonishing, some perceptions of growing old in age do not reflect the miraculous nature of modern technologies. In one study that analyzed the stereotypes of aging in cultures across the world, results revealed that countries such as Argentina and Serbia have shown a slightly pessimistic view of aging; they believe that aging is mainly characterized by a decline in learning ability and attractiveness (Löckenhoff, 2009). Surprisingly, 21 out of 26 countries surveyed shared this same negative view of aging (Löckenhoff, 2009). The 5 outlying countries, including India, China and Malaysia, have shown a positive perception of aging. The societal beliefs of these countries are relatively optimistic; they value the aging process because with age comes
Influence and authority. In comparison to other countries, such Asian cultures believe that aging is a time of wisdom, respect and life satisfaction (Löckenhoff, 2009).

These elements of old age are commonly described in psychological theory. Erik Erikson contended that each stage of development has its own fundamental task (Myers, 2011, p. 450). Furthermore, Erikson emphasized the role of culture and society in the conflicts that characterize psychological development (McLeod, 1970). Erikson theorized that two major goals of adulthood are intimacy, the ability to maintain close relationships, and generativity, the ability to remain productive and purposeful in later years (Myers, 2011, p. 451). If the these two forces triumph, then the result is successful aging. One study by Korean researchers relied on Erikson’s stages to analyze healthy aging, and even noted a key distinction between the terms “healthy aging” and “successful aging” (2015). They found that while successful aging is a “goal of old age,” healthy aging is a lifelong process of “optimizing opportunities [...] for wellness” that ultimately leads to successful aging (KyungHun, YunJung, JaSung, Hee, JongHee, and KwuyBun, 2015).

The process of aging is a universal one; a great majority of the population will one day experience the joys and despairs of old age. In order to fully comprehend the complexities of healthy aging, the biological, psychological and social perspectives must be analyzed.
Biological Factors

The first indication of aging is often physical. A grey hair, a wrinkle on the face - these characteristics have become typical features of increasing age. Physical degradation plays a large role in the aging process. The body deteriorates slowly, which causes bones to weaken, neurons to become inert, and cells to die from the natural process of apoptosis. Some research points the blame at an incredibly microscopic element of the body’s biology: the telomere.

Telomeres are the caps at the ends of DNA molecules that protect genes from eroding (Reece, 2011, 318). Often analogized to the aglets on shoelaces, telomeres have an important role in stopping gene disintegration. As DNA replication takes place over time, these telomeres shorten. In fact, the shortening of telomeres has been linked to the aging process of certain body tissues, and even the aging of an organism as a whole (Reece, 2011, p. 319). In one study conducted by Elissa Epel, stress has been shown to impact the rate of cellular aging by increasing the rate of telomere shortening (2004). The study has demonstrated that women with the highest level of perceived stress have shorter telomeres, the equivalent of one decade’s worth of aging, than women with lower stress (Epel, 2004).

However, despite the seemingly uncontrollable physical deterioration over time, certain factors can aid in prolonging health. The first, and arguably most important, is regular exercise. Not only does exercise boost energy and improve mood, but it also increases levels of high-density lipoprotein and decreases unhealthy triglycerides (Mayo Clinic, 2016). In a study conducted on mice, moderate exercise on a treadmill extended lifespans by 10 weeks on average, which is statistically significant considering the typical lifespan of a mouse is 80 weeks (Navarro, 2004).
Furthermore, research shows that exercise can play a large role in the preservation of telomeres. Dr. Loprinzi's study examined the link between movement-based behaviors and telomere lengths. The results showed that greater engagement in physical activity was associated with longer telomeric lengths (Loprinzi, 2015). Although the data cannot prove causation, studies have shown that “telomeres are predictive of mortality”; shorter telomeres point to shorter lives (Reynolds, 2015).

Another factor that has the ability to extend life is diet. Through the consumption of foods, the body receives the nutrients and minerals it needs to survive. Certainly, the purer the diet, the healthier the organism. In particular, calorie restriction has been of great interest in recent years. Research in certain animals has shown that consuming 40 percent fewer calories can improve lifespan and risks of disease (NIH 2012). In fact, certain studies on nonhuman primates show that calorie reduction can reduce the risk of diseases such as cancer (NIH 2012). One study on mice has shown that dietary restrictions can “favorably influence late-life disease patterns and delay immunologic aging” (Weindruch 1986). Essentially, caloric restriction, without malnutrition, can delay the aging process and thus extend the lifespans of certain species (Coleman 2014).
Psychological Factors

Throughout the aging process, great psychological changes can occur. For example, while crystallized intelligence, or accumulated knowledge, stays constant throughout adulthood, fluid intelligence, or the ability to reason speedily and abstractly, decreases up until the age of 75 (Myers, 2011, 464). One study attempted to establish a link between these intelligences and the ages at which analytic and artistic people, comparatively, created their best works (Simonton, 1988). The results show that crystallized and fluid intelligences were at play: those involved in logic work (math and science) had greatest creative ability in the early adulthood stages while those involved in accumulated knowledge (authors and poets) had heightened creative ability the middle/late adulthood stage (Simonton, 1988).

One Korean study shows that depression is most often associated with the elderly. This is possibly due to the fact that in the late adulthood stage, most close relationships decrease in number (KyungHun, YunJung, JaSung, Hee, JongHee, and KwuyBun, 2015). This most often causes loneliness, which is a stimulant for depression. One study in the Netherlands has shown that major depressive disorder in the elderly is common (Beekman, Deeg, 1995). Surprisingly, nearly 21 percent of elderly adults currently meet the criteria for a mental disorder (Karel, Gatz & Smyer, 2012). The manifestation of mental disorders go further than simply an ailment of the mind; they can alter the trajectory of physical illnesses (Gabrel, 2007). For example, elderly people who suffer from heart disease are more likely to be influenced negatively from untreated depressive disorders (APA, 2005).

Fortunately, there are certain psychological factors that seem to improve mental health in old age. For one, there is much belief that age is simply a way of looking at the world, rather
than a state based on numerical age. One study, conducted by Mossey and Shapiro, deals with the perception of health in elderly individuals (1982). The study found that people who had low self-rated health had almost three times the mortality rate than people with higher self-rated health (Mossey, Shapiro, 1982). Furthermore, there is an increased risk of death for people with low self rated health rather than low objective health. In other words, people who thought they were ill had a statistically higher risk of death than people who were actually suffering from a physical illness (Mossey, Shapiro, 1982). This study is an incredible clue into the psychological workings of age.

Mossey and Shapiro’s study fortified the importance of perspective in psychological health. Ellen Langer explored the link between perceptions of age and the experience of symptoms of old age, particularly the connection between male baldness and risk of prostate cancer. Langer considered the idea that because “baldness is a cue for old age,” men who became bald earlier in life were more likely to perceive themselves older, and thus expected themselves to age quicker (Grierson, 2014). To test her theory, Langer devised her landmark hair-salon study; the results demonstrated the fact that women who perceived themselves as looking younger after a visit to the salon experience lower blood pressure than women who felt older (Grierson, 2014). In addition to showing the importance of perspective, Langer’s studies expose self esteem as an indicator of mental health.

High self esteem points to better psychological health through age. According to Orth, Robins and Widaman, “self esteem is a cause rather than a consequence of life outcomes” (2012). In fact, as self esteem falls, the control of one’s environment decreases as well (Rodin, Langer 1980). Further studies by Langer show that giving an elderly person a plant to care for
and a choice in daily schedule can improve psychological health; twice as many subjects who nurtured a plant and made their own decisions were alive at the end of the study than subjects in the control group (Grierson, 2014). Caring for an external figure can give a person living in a retirement home “greater importance and gives them a purpose in life” (Rodin, Langer, 1978). Langer’s studies strengthened Erikson’s theory of psychological stages, and particularly the influence of generativity. In other words, a person’s environment plays a large role in agency and belonging - it seems to function in a motivational way (Wahl 2012). A purposeful environment operates to “enhance feelings of personal control, autonomy, and responsibility”; this in turn boosts health development (Koelen & Lindström, 2005).

Finally, mental stimulation can cause the deceleration of cognitive deterioration (Iowa 2013). According to a study from the University of Iowa, people in middle adulthood who played at least ten hours of a video game that tests “mental processing speed and skills” over several weeks showed a delay in cognitive decline by as much as seven years (Iowa 2013). In another study, senior citizens played nearly twenty-four hours worth of video games over a period of eight weeks. After the gaming sessions, the seniors who played the game showed improvements in “memory, reasoning, and cognition” (Thompson). Mental stimulation, especially before the aging process truly begins, has been proven to improve psychological development.
Social Factors

In old age, social support is one of the greatest influences. With retirement comes decreasing social connections, and thus can lead to feelings of loneliness, despair and lack of intimacy. Additionally, chronic and disabling illnesses and stressful events such as the loss of a spouse can contribute to depressive episodes (NAMI, 2009). However, studies have shown that retirement can have many benefits to the elderly. Retirement effectively reduces daily stress, and therefore improves mental health and decreases negative thinking (Coursolle, 2010). Coursolle’s study further shows that individuals with high levels of work stress who retire have a lower risk for depressive symptoms (2010). This is possibly because the stressors of work would interrupt family and home life; thus with the elimination of those work stressors, a better home life, and emotional well-being results (Coursolle, 2010).

The presence of social support resources have a great impact on emotional health for people of old age. Support centers that focus on geropsychology help older people to overcome problems in family life and acclimate to major changes in later years (APA, 2005). However, there is a great shortage in qualified geropsychologists, especially with increasing rates of elderly people (IOM, 2012; SAMHSA, 2007). In fact, fewer social support resources are associated with higher levels of depression in the elderly (Vanderhorst & Mclaren, 2005). In addition, a lack of social support can also lead to greater risk of suicidal ideation (Vanderhorst & Mclaren, 2005). Fortunately, the majority of suicides in the elderly population are highly preventable. Studies show that older adults look for help; “20 percent see a doctor the day they die, 40 percent the week they die, and 70 percent the month they die” (NAMI, 2009). Improvements in social support resources can eliminate the risk of both depression and suicide.
The desire for social relationships is clearly a motivator for life. In one study conducted by Mitsuru Shimizu, the mortality rates surrounding important ceremonial events were analyzed. Certain holidays, such as Christmas, Thanksgiving, and birthdays, include a great social component. The purpose of such holidays is maintaining and enriching family relationships. Shimizu’s study showed that people are “more likely to die after rather than before important ceremonial events” (2008). This concept, called death deferral, reflects that elderly people have a will to live, especially when it includes social relationships.

Finally, the environment at assisted learning facilities play a large role in perceived well being. When the elderly move to assisted living, often the decision isn’t one of desire, but rather one of purpose. Assisted living provides a home, and because of this, small details within assisted living are incredibly important. A study by Nan Sook Park shows that the friendliness of the staff and mealtime enjoyment played a large role in well-being (2009). Not only that, but these factors had a greater influence on emotional stability than did social support and activities (Park, 2009). Essentially, relationships with the staff and residents, and enjoyment during meals point to greater decrease in depressive symptoms than any other types of social engagement (Park, 2009).
Conclusion

The aging process is greatly inevitable. Every person can experience aging, however certain factors can shape the outcomes of the process. With increasing research into aging comes a greater responsibility to use the obtained information and implement it in a way that proves beneficial to the elderly community.

Preparation for aging should begin early. The focus should be on creating healthy habits that last a lifetime, and promoting them within society. For example, diet control and exercise should be tenets of daily life because in the future they can greatly reduce the risks associated with aging. These behaviors should be promoted while an individual is still employed. Company programs should designate time in the workday to exercise, such as taking a walk after lunch. Positive progresses in health should be celebrated and incentivized. Furthermore, society should abolish the fear of becoming outmoded in the workplace. When companies attempt to modernize their internal systems, they should take into account the limitations of those increasing in age. Learning new topics are difficult, so additional training and assistance should be available to those who need it.

Most importantly, adequate support systems need to be in place for the elderly in order to achieve successful aging. As American society ages, it is imperative that this relatively large portion of the population be supported by competent and satisfactory psychological counsel. In addition, doctors should apply greater focus on screening for mental health issues in regular check-ups, as psychological disorders are often diagnosed as physical ailments.

In recent years, great strides have been made to accommodate the elderly in society. However, there should be a greater emphasis on mental stimulation. Within retirement
communities, classes should be available to the elderly so that they can once again feel the joy of mastering a new skill. For example small activities such as gardening clubs, videogame hours, and potlucks can help people find a niche in society. Not only will such clubs give the elderly social benefits, but additionally, their newfound ability to contribute to society will boost their mental and emotional health.

Perspective is everything. A person’s worldview is greater than simply seeing the glass as half full or half empty; it is a purposeful desire to change perceptions by altering thinking. In other words, optimism should be a way of life. Often the stereotype of increasing age is one of purposelessness. In reality, old age should be a celebration of life and all its accomplishments. Finally, finding meaning and purpose in life is incredibly important, especially in old age. Working towards a goal, making progress, and fulfilling that goal can have an immense influence on a person’s well-being. Although the transition into old age can be difficult, a sense of purpose can become the anchor in rough waters.

The aging process is an ubiquitous force, and one that begins far earlier than previously believed. The ultimate goal of successful aging is met by conscientious choices to live healthier and fuller lives today. By examining the factors that lead to healthy aging, American society can aim to better understand the lives of the elderly and prepare for a time when the next generation finds itself in a similar situation.
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