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**The Age-Affect Relationship and  
Potential Consequences for  
Decision Making**

**Mariam Mohsin  
Saman Nazir**

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**Mariam Mohsin**

*Pakistan Institute of Development Economics, Islamabad.*

*and*

**Saman Nazir**

*Pakistan Institute of Development Economics, Islamabad.*

**PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS**  
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*Editorial Committee*

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Saman Nazir

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Pakistan Institute of Development Economics  
Islamabad, Pakistan

*E-mail:* [publications@pide.org.pk](mailto:publications@pide.org.pk)

*Website:* <http://www.pide.org.pk>

*Fax:* +92-51-9248065

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## **ABSTRACT**

This paper studies age and aging as potential variables of interest in applied psychology and management science. The paper is divided into two analytical parts. The first part discusses aging in relation to emotional control processes and potential implications and tries to explain how older adults deal with negativity and loss while regulating well-being. The second part discusses the literature that deals with outcome variables, such as performance and underlying determinants of performance like motivation and arousal and their potential relationship with aging.

The discussion includes a synthesis of how emotion-regulation among older adults relates to the age-performance linkage and the interceding motivational mechanisms involved. The discussion section also highlights missing links in the literature and provides recommendations for further research in the area.

*Keywords:* Age, Aging, Emotional Regulation Gerontology

## INTRODUCTION

Age is an important variable provided its omnipresence across all organisational situations and requires rigorous research attention. However, it has been given little attention in applied psychology and management science literature with many experimental, empirical, and meta-analytic studies treating age as a control variable. Rarely has it been given attention as a variable of interest.

Improved health facilities and more sophisticated medical treatments for previously terminal diseases have caused life expectancy to increase worldwide. This also means the global workforce is aging. By 2007, 18.4 million workers in the United States were 55 years or older, representing 13 percent of the country's workforce (Avery, McKay & Wilson, 2007). By 2015, this number was expected to rise to 31.9 million, or approximately 20 percent (U.S. General Accounting Office, 2001). Similarly, 41 percent of the Canadian workforce is projected to be between 45 and 64 by 2021 (Lende, 2005). Thirty percent of workers in the United Kingdom are over 50 years of age (Dixon, 2003). Similarly, the older population in Pakistan, which currently stands at 12.5 million, is expected to be double by 2030. It is estimated that the older population will reach 40 million by 2050 (Zaidi, et al. 2019, p. 60).

Despite the changing demographic trends of the workforce, most organizations are little prepared to meet the challenges associated with these changes (Hedge, Borman & Lammlein, 2006). Suitability of jobs and jobs environment to chronological age is a significant concern to address. In countries where the aging workforce is combined with high birth rates and availability of a young workforce, it becomes an even more important question to investigate.

The focus of this paper is to study the differences across older and younger individuals in their cognitive control processes that have potential implications for further research.

Within the literature on employment and aging, the term older adult has been used for employees ranging from 40 to 75 years of age, depending upon the field as well as the purpose of the study. In terms of the labor market, the term generally refers to employees over 50-55 years.

This threshold is selected because this age bracket features a decline in workforce activities (Kooij, 2008).

Our approach in this paper is primarily speculative and analytic. The first part of the paper discusses aging in relation to emotional control processes and potential implications and explains how older adults deal with increasing amounts of negativity, losses, and pain, without significantly suffering low levels of happiness and well-being. The second part discusses the literature that deals with outcome variables of the aging process like performance and underlying determinants of performance like motivation and arousal and their potential relationship with aging. The discussion includes a synthesis of how emotion-regulation among older adults relates to the age-performance linkage, and the interceding motivational mechanisms involved. The discussion section also highlights missing links in the literature and provides recommendations for further research in the area.

## **PART I**

As a general understanding, aging is related to a decline in cognitive abilities, especially memory (Mroczek & Kolarz, 1998). Most people, including the aged population, define old age as a time of inevitable physical and cognitive decline. Research suggests that perceptions of this inevitable decline among older people have deteriorating effects on their cognitive processes, including memory (Levy, 1996). Levy refers to this process as self-stereotyping among older adults and argues that the subliminally activated stereotypes about oneself can alter judgments regarding oneself and therefore affect cognitive performance. In a two-study research, Levy's findings suggest that this self-stereotyping explains part of the cognitive decline among the elderly. If this variable is controlled for, research could better understand the nature and importance of other antecedents of age-related cognitive decline.

It is also a common understanding that new learning processes slow down with aging. (Comfort, 1976). This is explained in terms of anxiety and fear of failure. Comfort (1976) argues that older individuals, no matter how perfectly able to learn, experience an anxious fear of failing and therefore prefer not answering over giving a wrong answer. However, research suggests that not all cognitive processes and learning abilities, not even all types of memory, decline with age (Mather & Carstensen, 2005). It is an interesting discovery in social science research that human aging,

long considered to be characterised by a steady decline in mental abilities, is a more complex concept than previously presumed (Carstensen & Mikels, 2005).

An important point here is to distinguish among different types of cognitive abilities. Cognitive processes also regulate affective components of human behavior, and affective processes have a spillover effect on cognitive processes. Thus, it is essential to differentiate between younger and older adults in terms of affective processes and their consequent effects on cognitive processes. Recent research has spared aging from a decline in cognitive abilities required for emotion regulation. Some research even suggests the possibility of an improvement in emotion regulation as people age (Charles & Carstensen, 2004).

### **Aging and Well-being**

Emotion regulation, being one of the significant differences between younger and older adults, requires research attention. In the coming section, we will discuss several approaches to happiness and well-being and will see the implications of these approaches on the discussion under study. Early conceptualisations of happiness and well-being argued that socio-demographic variables like age could explain the differences in happiness across individuals, gender, income, and marital status (Bradburn, 1969; Andrews & Withey, 1976; Veroff, Douvan, & Kulka, 1981; Campbell, Converse, & Rodgers, 1976; Gurin, Veroff, & Feld, 1960). In the wellbeing research, this is referred to as the social indicators movement ((Ryff, Keyes, & Hughes, 1998). According to this approach, well-being decreases as people age, owing to the depletion of physical, psychological and material resources.

### **Aging and Emotion Regulation**

Contrary to this argument, the research following the social indicators movement argued that socio-demographic variables had a modest influence on individual well-being (Ryff, 1989; Brim, 1992; Myers & Diener, 1995; Diener, 1984, 1994). Researchers have observed that older people do not appear to be less happy than younger or middle aged people, despite going through events in life that can reduce well-being; for example, deterioration of health, death of a spouse or a friend. The decline in cognitive ability is not combined with a decline in emotion

regulation (Mather & Carstensen, 2005). This concept is called the paradox of well-being (Mroczek & Kolarz, 1998).

### **Emotion Regulation and the Socio-emotional Selectivity Theory**

According to Carstensen (1991), the age-graded changes in emotion regulation improve through the course of lifespan. Beyond this, some authors even argue that as individuals age, well-being may even improve as individuals age (Carstensen, 1991; Labouvie-Vief & Blanchard-Fields, 1982). Emphasising on social relationships, Carstensen (1991) postulated socio-emotional selectivity as a system that regulates age-related changes in future time perspective. Carstensen proposes two significant motivations for social interactions: (1) emotion regulation, and (2) knowledge acquisition.

In the socio-emotional selectivity theory, well-being is defined as life-satisfaction and positive and negative affect. Aging is mainly associated with positive and negative affect. It is argued that emotion regulation improves with age, which helps individuals maintain their positive affect and reduce negative affect. This process of gearing their lives towards reducing negative and increasing positive affect is attributed to the concept that older people see their future as bound in contrast to younger individuals who are more future-oriented and whose outlook towards future is largely open. The socioemotional selectivity theory posits that time horizons influence goals. Open-ended goals call for preparatory strategies like information gathering, expanding the breadth of knowledge, and looking for novelty. In contrast, time-bound goals are likely to induce a focus on more realisable objectives. In a socioemotional context, this implies that younger adults, with an 'open horizon' of time ahead of themselves, are likely to invest in new social relationships that offer diverse emotional information, as compared to older adults who are more likely to look for social partners who fulfil emotional goals (Mather & Carstensen, 2005).

Watson & Blanchard-Fields (1998) observed that older adults were more likely to use emotional coping strategies and problem-focused action than younger adults for dealing with interpersonal and emotionally significant problems. This integration of emotional and rational strategies is consistent with Carstensen's argument. Moreover, research shows that older adults use more passive-dependent and avoidant-withdrawal solutions when faced with interpersonal predicaments, as do younger

adults (Blanchard-Fields, Camp, & Jahnke, 1995). Even when compared to middle-aged adults, older adults were found to be qualitatively different in their style of emotional coping. Middle-aged persons exhibited more active styles like confronting negative emotions, while older adults used more passive strategies (Blanchard-Fields, Stein, & Watson, 2004).

Other work in this context also aligns with the idea that aging helps increase positive affect. Labouvie-Vief and Blanchard-Fields (1982) suggested that processes of affect and cognition are restructured with age, which permits better harmonisation between the two. Lawton (1996) argues that adaptations to life events and social contexts, along with other personality variables, predict emotion regulation and affect with aging.

This argument, however, raises a crucial question: does the greater focus on emotion regulation in older adults also influence their decisions? It is essential to investigate whether the positivity effect, selective perception, and less attention to negative cues cause older employees to make poor quality decisions, or whether the positive framing of situations enables them to make better decisions.

## **PART II**

Experimental studies in gerontology argue in favor of the importance of the age-performance linkage (Kausler, 1991). Studies in this area are divided into three major categories: (1) those who believe that the age-performance linkage is too modest and is therefore negligible (Kausler, 1991), (2) those who state that performance decreases with age (Eisdorfer, 1967; Eisdorfer, Nowlin, and Wilkie, 1970) and (3) those who argue that age can be positively related to task-related performance (Botwinick & Kornetsky, 1960; Birren, 1960; Thompson & Nowlin, 1973). However, the age to performance linkage is intertwined with several related concepts, foremost being the existing antecedents of performance as articulated by the literature. The relationship of age with these antecedents should also be studied before any theoretical framework is established.

### **Competence, Motivation, and Performance**

The argument here is that the performance manifested by a specific subject on any task is, in part, a function of the subject's ability or competence in doing that task and in part determined by other performance-related variables that regulate the subject's ability (Kausler, 1991). Also,

performance-related variables are not task-specific and instead consist of broad general processes that affect performance on a variety of tasks varying significantly in their underlying processes. Common among these performances related variables are related to the subject's general health, practice, age, motivation, and other related psychological processes. While general health may affect performance due to variations in energy, stamina, sensory functioning, etc., motivation affects performance because of variations in attention and arousal levels (Kausler, 1991). Apart from the health variable, which could be entered in the forthcoming studies as a statistical control, age, motivation, and motivation as a function of aging could be important determinants of performance. Most of the current studies in management literature treat important demographic variables like age as statistical controls. Less attention is paid to the effects this variable could have as an independent predictor.

### **Motivation, Arousal and Performance—Age: The Missing Link**

Differences in motivation levels can have both debilitating and facilitating effects on performance across tasks, depending on what component of motivation is being dealt with and the intensity of that component (see Botwinick, 1959; Okun & Elias, 1977). The debilitating effects are primarily associated with an emotional component that is principally characterised by arousal, anxiety, and fear. Kausler (1991) states that while a moderate amount of these emotions may facilitate performance by contributing to alertness and energy level excess of emotion is likely to debilitate a subject by prompting situationally incompatible responses that inhibit performance. Facilitating effects are related to task-involvement, defined as the intrinsic appeal of the task at hand and the consequent intensity and concentration of effort manifested by the subject towards the task. Task-involvement is positively associated with performance (Kausler, 1991); however, the effect of age and motivation due to aging is an important missing link. Though Kausler (1991) argues that the intensity coming from task-involvement beats any underlying mechanism that converts competence and involvement into performance, there is no empirical evidence supporting this argument. However, several research studies have indicated the presence of, though modest, decreasing trend in anxiety across participants from early to late adulthood during paper and pencil tests (Costa, et al. 1986; Costa & McCrae, 1988; Hutto & Smith, 1980; Schultz, Hoyer & Kaye, 1980).

Little is known about how motivation works for older adults to remain active and perform well in the workforce. Research on age and motivation is scarce and conceptually diverse (Kooij, 2008).

### **Age and Arousal**

In a relevant review of literature, Kausler (1990) concluded that age differences in anxiety, whether state or trait, are too negligible to be considered an essential causative source for age-related reduction in performance on cognitive tasks. However, in the same review, Kausler argues that in physiological terms, this emotional component of motivation is recognised in terms of arousal, which refers to the nervous system's activation. High arousal, in this case, is characterized by increased heart and respiration rates and is viewed as being debilitating to performance, like high levels of anxiety which was earlier explained to be related negatively to aging. This theoretical contradiction requires further understanding.

The age-arousal debate in literature is interesting. Several studies have focused on how aging relates to over-arousal and how this can negatively affect performance. Eisdorfer (1967) concluded that elderly individuals appear to be over-aroused compared to younger colleagues when working on stressful tasks. It was hypothesized that if this debilitating effect is removed, it would enhance performance. This hypothesis was later tested in a following study by Eisdorfer, Nowlin, and Wilkie (1970). A sample of elderly participants was injected with propranolol, a drug used to mitigate the aversive effects of nervous system activation. The control group was treated with a placebo. It was found that the treatment group made lesser stress-related errors on a provided task across repeated trials. Therefore, it was concluded that the over-arousal among the elderly was positively related to stress and negatively related to performance. However, the greatest weakness of this study was that the sample consisted only of elderly participants, and no comparison was made with younger counterparts. This provides further strength to the argument at hand.

This argument is further complicated because not all researchers working in the area of gerontology believe that aging is related to high arousal under stress. Some researchers have even argued the contrary (Botwinick & Kornetsky, 1960; Birren, 1960; Thompson & Nowlin, 1973). These researchers have found that older adults experience relatively

lower levels of arousal under stress than their younger colleagues. This argument is challenged by several researchers who comment that this debate may be resolved by the realisation that autonomic arousal includes several physiological mechanisms, some of which appear to be over-aroused in older adults, while others appear to be under-aroused (Powell, Milligan & Furchtgott, 1980; Woodruff-Pak, 1985, 1988). Backman and Molander (1986a; 1986b) tested this notion and concluded that heart rate increased with the degree of importance of the task (a golfing game in this example) and found an absence of an age difference. However, this absence was not tested across other settings and therefore leaves room for further research.

The age and stress relationship has also been studied in terms of negative affect (Bolger & Zuckerman, 1995; Suls, 2001; Mroczek & Almeida, 2004). Stress has also been found, especially in relevant personality traits like neuroticism, to be a stronger, more potent cause forth presence of relevant personality traits like neuroticism and negative effect across older samples (Mroczek & Almeida, 2004). Mroczek and Almeida's study explained this heightened reactivity of older workers towards stressors through kindling effects. The kindling effect is a process that explains sensitisation that occurs as a consequence of exposure to the same kind of stressors (Gilbert, 1994). Repeated exposure to the same stimulus is believed to cause painful and chronic effects. Mroczek and Almeida also use Gilbert's operationalisation in their research. However, most of the work on kindling effects, including Gilbert's, is in physiological connotation, and the concept of psychological kindling effects is yet to be explored. There is also a chance, though not researched, of the occurrence of tolerance effects instead of kindling effects.

Another concern that these studies overlooked was the types of stressors that moderated the stress to negative effect relationship. A better operationalization of stress in this context might yield better results. Also, this moderation may be explained by the self-stereotyping effect that cross-sectional data cannot filter out.

## **DISCUSSION**

Given the apparent contradictions and the missing links in the literature, it is essential to investigate the effects of age on outcome variables like performance and discover the moderating mechanisms through which this relationship works. The age-arousal linkage, the-

arousal-motivation linkage, the motivation-performance linkage, and the connecting nodes of these linkages need to be investigated for theoretical understanding in this regard. Variables such as job performance, other than task performance, need to be investigated.

The inconsistencies in research findings about the effect of age on arousal under stress shows that this relationship is contextually sensitive and in that it reveals the potential presence of moderating variables. Here, we refer back to the argument from Part I of this paper. Carstensen's socio-emotional selectivity theory is of central importance here. It has the potential to clarify the discrepancies in previous findings and to explain how is it that despite possibilities of physical ailment and cognitive decline do older adults make it possible to remain happy and well. Motivations behind social interactions, time-horizons and their effects on general problem-solving tendencies and selectivity in choosing grounds for emotional responses are important considerations for research in this field. Once this argument is established, it will be easier for future researchers to study the role of emotion in the age-arousal and arousal-performance debate.

After a short review of related literature, several observations were made. Social scientists seek to understand how and why emotion, cognition, personality, and other psychological characteristics change in people as they age. It is important to pay attention to methodological concerns. While most gerontology-related research has been experimental, Hofer and Sliwinski (2006) notice that most gerontology-related research has been experimental. Hofer and Sliwinski (2006) notice that most empirical field research has been cross-sectional. We suggest that to understand aging, longitudinal studies can provide many advantages compared to cross-sectional studies. Aging is a chronological concept, and therefore between-person age comparison cannot provide insights into the understanding the age-related changes in stable individual characteristics. On the other hand, longitudinal studies can provide better opportunities to observe within-person changes. The effects of other related variables, however, also need to be taken into consideration otherwise, this limits the effectiveness of the longitudinal design.

Another important observation was extracted from the Hofer and Sliwinski (2006) study. An explanation of the characteristics of changes that occur due to individuals' chronological age is not sufficient for a

theoretical model on aging. A good theory must also conceptualise how aging influences the psychological processes that it is found to effect. Hofer and Sliwinski (2006) observe that cognitive loss among older adults is not a smooth, continuous process. It is stochastic and discontinuous. Here again, we recommend using longitudinal designs to observe intra-individual changes instead of using age-heterogeneous samples and cross-sectional designs.

Researchers have also questioned the sufficiency of chronological age as an operationalisation of aging in the work setting (Settersten & Mayer, 1997; Avolio et al. 1984). Aging points to the biological, psychological, and social changes in individuals on the individual's personal, organisational position. These changes can vary from individual to individual, depending on the individual's position in personal, organisational, and social settings (Kooij, 2008). This implies that individuals sharing the same chronological age may vary in terms of health, life-cycle stage, career stage, and family status. Chronological age may only serve as an alternative for age-related concepts that can influence work-related outcomes directly or indirectly and does not have the potential to address all the factors that aging is believed to influence. Thus, a better operational measure of age should incorporate other sources of aging. This would also resolve the question of whether the supposed declines in specific abilities and improvements in others are purely chronological.

To sum it up, there are apparent ambiguities in the literature related to aging and well-being. In this context, the two important bodies of research are those who believe age increases the stress to negative effect relation and those who argue otherwise. Both arguments are grounded in theory and empirically supported. This points to the existence of potential moderators, some of which, like personality (Mroczek & Almeida, 2004), have already been identified by recent works. Further research should identify potential mediators and moderators a better theoretical understanding of age to establish a better theoretical understanding of age as a construct.

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