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Original Article:

A CROSS-CULTURAL EXAMINATION OF EMOTIONAL MEMORY PROCESSING: US vs. AFGHANISTAN

Frishta Sharifi, M.S.
Mills College, USA

Christie Chung, Ph.D.
Mills College, USA

Abstract

A positivity effect where older adults remember positive information better than young adults has been documented widely in the memory literature. However, research on the generalizability of the positivity effect to non-western cultures is still in its infancy. The present study is the first in the field of memory to explore the differences in emotional memory patterns between the US and Afghan cultures. Due to the war in Afghanistan, we hypothesized that the Afghan older adults' negative life experiences may reduce the effect of the positivity effect usually found in the US. In the present study, we tested young and older US and Afghan adults on an emotional picture memory task consisted of 30 pictures (10 positive, 10 negative, 10 neutral). They were later asked to recall these pictures using brief verbal descriptions. US older adults remembered significantly fewer negative pictures compared to US young adults, demonstrating a positivity effect in old age. Afghan adults, however, did not show an age-related positivity effect in memory as predicted. We discussed our results with the framework of current socio-emotional theories.

Keywords: Aging, emotional memory, positivity effect, cross-cultural

AUTHOR NOTE: Please address all correspondence to: Dr. Christie Chung, Mills College Psychology Department, 5000 MacArthur Blvd., Oakland, CA 94613. Email: cchung@mills.edu

INTRODUCTION

According to the 2002 World Population Ageing Report published by the Department of Economic and Social Affairs, Population Division, the aging population is unprecedented, pervasive, enduring, and has profound implications for many facets of human life. One of these facets of life that is immediately and heavily impacted by the expanding life span of people worldwide is of course mental health, in particular cognitive health of older adults. Most people consider aging as a downhill battle, with the perception that cognitive health declines as one's chronological age increases. However, current studies in the psychological literature has shown that although certain types of memory does decline with age, e.g., episodic memory, such as remembering what you had for dinner last night, other types of memory stay rather constant with age, e.g., semantic memory, such as knowing the address of one's childhood home. In the present study, we examined the effects of age and culture on emotional memory, a type of processing that many US researchers have claimed to remain consistent or even to improve with age (Carstensen, 1993, 2006).

A growing literature suggests that older adults place greater emphasis on processing and remembering positive information than young adults (see Mather & Carstensen, 2005 for a review). For example, Charles, Mather, and Carstensen (2003) found that older adults remembered significantly fewer negative pictures than young adults on a picture memory task. Mather and Carstensen (2003) found that older adults not only attend less to negative faces during encoding, but also subsequently recall fewer of the negative stimuli compared to positive faces. Although most of the original positivity effect results were found in Western countries, recent studies have extended this effect to Eastern countries such as Korea (Kwon, Schiebe, Samanez-Larkin, Tsai, & Carstensen, 2009) and China (Chung & Lin, 2012). Conversely, Fung, Lu, Goren, Isaacowitz, Wadlinger, and Wilson (2008) and Chung, Yip, and Lin (2014) did not reveal an age-related positivity effect in Hong Kong – a British colony from 1897 to 1997, now governed by China. In the present study, we examined the generalizability of this positivity effect to Afghanistan (Central Asian/Middle-East) – a region that is largely under-represented in the psychological literature.

Why Afghanistan?

Afghanistan has experienced war in the past three decades and many Afghans have escaped the prolonged violence as refugees to the US and other nearby countries (Goodson, 2001; Rasanayagam, 2009; Rubin, 1995). However, people who are still in Afghanistan often live a life that is unstable, unpredictable, and traumatizing (Eggerman & Panter-Brick, 2010; Ghufran, 2006). Afghanistan has experienced variety of arm conflicts, poverty, incapacitated educational and health care system due to many years of war and conflict (Panter-Brick, Eggerman, Gonzalez, & Safdar, 2009). Life expectancy is also

much lower than national average as many people die young in the war and healthcare are often not fully available to the older population (Miller, Omidian, Rasmussen, Yaqubi, & Daudzai, 2008; Welsh & Brodsky, 2010). In this study, we aimed to take a preliminary look at how these cultural factors may influence emotional processing and memory in young and older Afghans.

Socioemotional Selectivity Theory

Socioemotional Selectivity Theory (SST) is one of the most prominent US theories used to explain the positivity effect in old age. Since this theory was developed in the US to explain emotional memory data collected in the Western world, we wanted to examine the generalizability of SST (Carstensen, 1993, 2006; Carstensen & Mikels, 2005) using data collected from the Middle East. According to SST, when one's lifetime is perceived to be limited, emotionally meaningful thoughts, for example viewing the past as positive, are emphasized more than thoughts directed toward gaining new information (Carstensen, 1993, 2006; Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Carstensen & Mikels, 2005). Thus, older adults are more likely than young adults to prioritize spending time with close family and friends (Fung, Carstensen, & Lutz, 1999). Older adults are also more likely to process information that is meaningful based on their limited cognitive resources. This preference usually translates into a positivity effect in memory and attention, given that most people prefer positive over negative emotion (Carstensen, 1993, 2006).

Apart from observing a positivity effect in memory, researchers have found a similar effect in other paradigms, such as reviewing past choices (Mather & Johnson, 2000) and autobiographical information (Field, 1981; Kennedy, Mather, & Carstensen, 2004; Schlagman, Shulz, & Kvavilashvili, 2006; Wagenaar & Groeneweg, 1990). In a meta-analysis of neuroimaging studies, Kensinger and Leclerc (2009) concluded that older adults process positive information differently from young adults by recruiting more frontal, self-referential processes. Quinn, Mather, and Carstensen (2004) found that when young adults were instructed to focus on the emotional aspect rather than the accuracy aspect of a memory task, they are more likely to show a positive bias in memory similar to older adults. Older adults who had higher cognitive functioning ability were more likely to show a positivity effect, pointing to the importance of cognitive control in the process of inhibiting negative thought processes (Mather & Knight, 2005). Although several other studies have documented a lack of such a positive effect in aging (e.g., Comblain, D'Argembeau, Van der Linden, & Aldenhoff, 2004; Kensinger, Brierly, Medford, Growdon, & Corkin, 2002), abundant evidence suggests that older adults process emotional information differently from young adults. Yet, most of these studies have focused on the influence of neurological and cognitive age-related changes on emotional memory. The present study takes a unique cross-cultural perspective to expand our current understanding of age-related emotional memory and the applicability of the widely cited theories throughout the western world.

Emotional Memory and Culture

Recent development in the area of cross-cultural brain research suggests that culture shapes the way we process and remember information (Cohen & Kitayama, 2007; Nisbett, 2003). For example, Nisbett (2003) found that when shown pictures of a big fish swimming among a group of smaller fish, Japanese participants are more likely than Americans to comment on and remember the background environment of the picture, rather than just focusing on the big fish that captured attention. This finding may reflect differences in social structure and philosophy dating back many centuries. Thus, cross-cultural examination of emotional memory is not only interesting but essential in our understanding of the fast growing aging population in the world. Kwon et al. (2009) extended the positivity effect to Korean participants (tested in Korea) using an emotional picture memory task. Although cultural differences did emerge in the valence ratings of the pictures, for example, a picture could have been rated positive in the US but negative in Korea, the positivity bias remained once this difference was controlled. Chung & Lin (2012) also found a positivity effect in Chinese participants (tested in Canton, China), although the patterns of memory were different between the two countries. US older adults remembered more positive pictures than US young adults; but China older adults remembered fewer negative pictures than their younger counterparts. Ratings of the pictures were similar between participants from the two countries. Thus, although a positivity effect was found in both Korea and China, cultural differences in processing or remembering of the emotional stimuli remained.

Other studies revealed mixed findings. Fung et al. (2008) found that older adults from Hong Kong did not show the positivity effect in an attentional, eye-tracking experiment utilizing faces as stimuli. Chung et al. (2012) also did not find a significant positivity effect in Hong Kong using the same emotional memory picture task from Chung & Lin (2012). Although close in geographic proximity, China and Hong Kong differed vastly politically and culturally. Hong Kong's 100 years of British rule had much impact on the way the society evolved. Hong Kong is an international entre port, thus, many may consider it much more Westernized than China. However, in consideration of Chinese history, Hong Kong was one of the places to which many Chinese scholars (now older adults) escaped during the Chinese Cultural Revolution (1966-1976). Thus, many of the scholarly and cultural traditions that were banned in the Chinese revolution era were preserved in Hong Kong. This cultural difference might have contributed to the lack of positivity effect in Hong Kong older adults (see Chung et al., 2014). In the present study, we tested participants in Afghanistan to examine how a war in a collectivistic country may affect emotional processing. This unique perspective has not yet been explored in the psychological literature.

Reed and Carstensen (2012) and Fung (2013) further addressed the lack of a positivity effect in some of these cross-cultural studies. Both articles documented that the

exhibition of the age-related positivity effect does not merely depend on the valence of positive material, but rather the meaning attached to positive information. Depending on what a culture deems "meaningful", the subsequent emotional memory pattern will differ, despite a similar underlying cognitive mechanism. For example, in Western, individualistic cultures such as the US, one's personal emotions are in the forefront of most people's emotional processing. Therefore, the highly regarded positive emotions will be favored over negative ones, especially when one's cognitive resources are low in old age – this gives rise to the age-related positivity effect. On the other hand, although positive emotions are the most desirable emotions universally, due to the different emphasis placed on the individual vs. community, people from collectivist/interdependent cultures are likely to consider both positive and negative emotions as meaningful and important to maintain inter- and intra-personal harmony. Therefore, the age-related positivity effect in memory commonly found in the Western, independent world may not be as prominent in collectivistic cultures such as Asia. Thus, the question we ask in the present study is whether the war condition in Afghanistan would affect the way people process emotional information. Due to the current state of affairs in Afghanistan, young and older Afghans are more likely to weigh both positive and negative events in life as meaningful. Therefore, we may expect emotional processing to be similar between young and older adults, without necessarily observing a positive effect in old age.

METHOD

Participants

Forty-six young and 49 older adults participated in the US, and 15 young and 17 older adults participated in Afghanistan. Participants were screened using the Mini Mental State Examination for older adults (MMSE ≥ 27; Cockrell & Folstein, 1988) and the Beck Depression Inventory (BDI ≤ 10; Beck, Ward, Mendolson, Mock, & Erbaugh, 1961). Our final analysis included 43 US young adults, 36 US older adults, 15 Afghan young adults, and 13 Afghan older adults (see Table 1 for demographics and cognitive measures). Participants were tested in their native languages, i.e., English for US participants, and Dari for Afghan participants. Participants were paid US$10/hr to participate and each experimental session lasted about an hour. All participants were tested individually in a quiet room with a 15-inch PC laptop computer. Young US participants were tested at Massachusetts Institute of Technology (M.I.T.), and the older US participants were tested at Mills College. Five young and 5 older Afghan participants were tested in Kabul and Mazar-e-sharif either at the Afghan Women's Skills Development Center or in a quiet room at the participants' home. Participants' demographics and cognitive results did not differ by location tested (all t's > .22, p's > .05).

Table 1. **Demographics and cognitive measures means (SDs) for young and older adults tested in US and Afghanistan**

Group	Female	Age	Years of Education	MMSE	BDI	Digit Forward Score	Digit Backward Score	FOF
Afghan Old Adults (*n* = 13)	*n* = 7	61.15 Range: (55-74)	12.92 (1.605)	29.23 (1.927)	6.79** (7.718)	9.31 (1.437)	6.31 (1.182)	54.46 (9.252)
Afghan Young Adults (*n* = 15)	*n* = 11	21.60 Range: (18-28)	13.20 (1.521)	29.67 (0.617)	2.87 (1.506)	11.00 (2.00)	6.87 (2.326)	52.93 (2.216)
US Old Adults (*n* = 36)	*n* = 29	72.83 Range: (55.87)	17.18** (2.61)	28.81 (1.06)	4.38 (3.45)	1.58 (2.10)	6.08* (2.03)	45.22* (6.97)
US Young Adults (*n* = 43)	*n* = 25	21.23 Range: (18-27)	14.98 (1.87)	29.40 (0.76)	3.16 (2.67)	12.67 (2.24)	8.70 (2.76)	51.77 (7.41)

*$p < .05$, **$p < .01$

Note: Afghan older adults were significantly more depressed than young adults, although both groups were considered non-depressed by our exclusion criteria (BDI ≤ 10). US older adults had significant higher education level than US young adults. This is because most of our young participants were college students completing their first degree, while older adults already had the chance to complete their education. US older adults also had lower Digit Backward and Frequency of Forgetting (meta-memory) scores than US young adults. These results are consistent with findings in the cognitive aging literature.

Materials

The stimuli were 30 pictures (10 positive, 10 neutral, and 10 negative), with 2 fillers in the beginning and at the end of each encoding list (Appendix A). This picture memory task consisted of images of objects and scenes (see examples in Appendix B), and was designed and rated in the US, China, and Hong Kong (Chung, 2010; Chung & Lin, 2012). Two different encoding lists were created with the same pictures. Each participant received one of these two counterbalanced list.

Procedure

Participants were shown pictures at a rate of 4 sec/picture on a 15-inch computer monitor. They were told to view the pictures as if they were watching TV and were not informed of memory test that would follow. After viewing the pictures, the digit span forward and backward tasks (Wechsler Adult Intelligent Scale; WAIS, 1997) were administered to create a delay of approximately 5 minutes. Then, participants were asked to recall as many pictures as possible using brief verbal descriptions as the experimenter wrote down their responses. Afterward, participants completed the BDI and a metamemory questionnaire (Rasch modeled memory self-efficacy scale; Zelinski & Gilewski, 2004).

RESULTS

All analyses adopted a significance level of $p < .05$. Figure 1 shows the emotional memory results displayed by young and older adults in US and Afghanistan. Their data were analyzed in a 3 (valence: positive, negative, neutral) x 2 (age: young vs. old) x 2 (location: US vs. Afghanistan) mixed-factor Analysis of Variance (ANOVA). The three-way interaction among valence, age group, and location achieved marginal significance, F (2, 206) = 2.84, $p = .06$, $\eta^2 = .03$. The two-way interactions between valence and location, as well as valence and age group were both non-significant, F (2, 206) = 2.44, $p = .09$, $\eta^2 = .02$; F (2, 206) = 1.00, $p = .37$, $\eta^2 = .01$, respectively. The analysis did reveal a significant main effect of valence, F (2, 206) = 24.92, $p < .01$, $\eta^2 = .20$. Participants recalled more positive than neutral pictures, Ms = 3.01 vs. 2.40, t(106) = 3.40, $p < .01$; and also more negative than neutral and positive pictures, Ms = 4.15 vs. 2.40, t(106) = 8.67, $p < .01$; Ms = 4.15 vs. 3.01, t(106) = 5.78, $p < .01$.

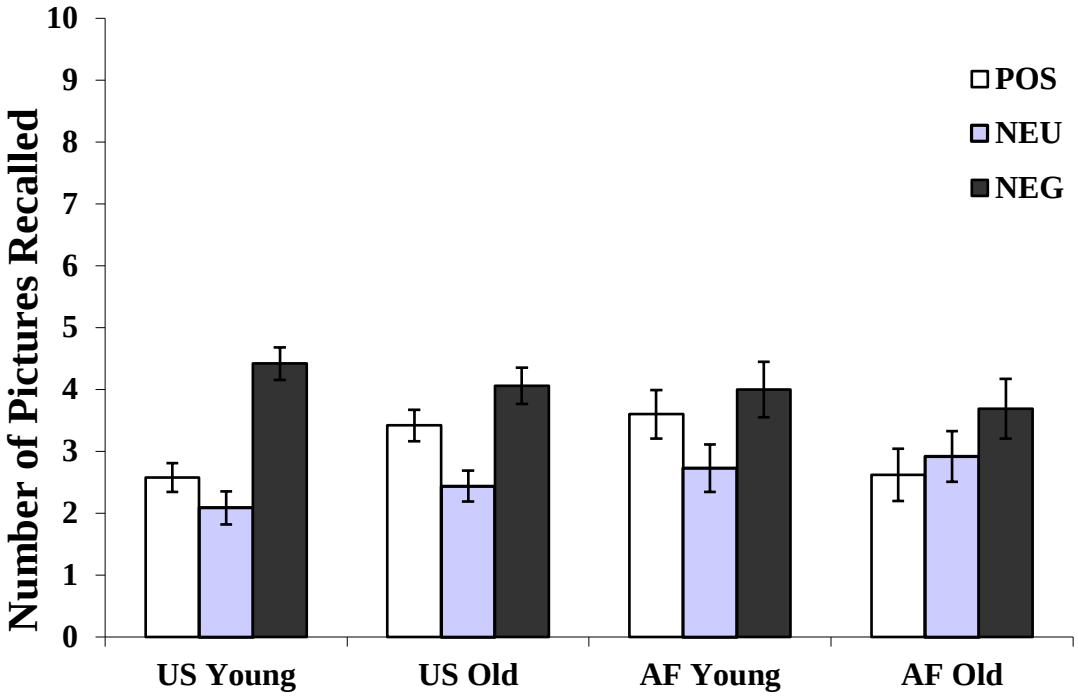

Figure 1. Mean number of positive, neutral, and negative pictures recalled for US and Afghan (AF) young and older adults. Error bars represent standard errors.

The small Afghan sample sizes might have contributed to the marginally significant (p =.06) three-way interaction in our ANOVA. Therefore, we broke down this three-way interaction by conducting 3 (valence) x 2 (age) ANOVA's within each country. In the US, the two-way interaction between valence and age was significant, F (2, 154) = 3.5, p < .04, η^2 = .04, and so was the main effect of valence, F (2, 154) = 38.15, p < .01, η^2 = .33. The main effect of age was not significant, F (1, 77) = .98, p =.33, η^2 = .01. In Afghanistan, the main effect of valence was significant, F (2, 52) = 5.10, p < .01, η^2 = .16. Both the interaction between valence and age, and the main effect of age were not significant, F (2, 52) = 1.56, p =.21, η^2 = .06; F (1, 26) = 1.17, p =.29, η^2 = .04 respectively.

Post-hoc t-tests were then conducted to further examine the significant two-way interaction between valence and age in the US, and the a priori contrasts for the two locations. US older adults recalled significantly more positive pictures than US young adults, Ms = 3.42 vs. 2.58, t(77) = 2.30, p < .03, constituting a positivity effect. Overall, Afghan participants did not show a positivity effect, as young and older adults' memory performances did not differ significantly (all p's > .05). All groups, except Afghan older adults showed significant patterns of emotional enhancement, i.e., remembered more negative and positive pictures than neutral ones, all t's > 1.85, p's < .05. Afghan older adults' neutral recall rate, on the other hand, did not significantly differ from that of

emotional (positive or negative) pictures, t's < 1.9, p's > .70, although they did recall significantly more negative than positive pictures, $t(12) = 2.69$, $p < .02$.

DISCUSSION

As the aging population grows, it is becoming more and more pressing for scientists to understand older adults' mental health changes and the impact these changes may have on the society. The present exploratory study examined emotional memory patterns in the US and war-torn Afghanistan, and demonstrated the well-documented positivity effect in the US, but not in Afghanistan. This study examining an under-represented population not only adds to our understanding of cognitive functioning cross-culturally, but also allows us to examine the generalizability of the Socioemotional Selectivity Theory (SST).

According to SST, when one perceives the amount of time left to live as limited, more cognitive resources will be used in processing emotionally meaningful material, which is usually positive rather than negative (Carstensen, 1993, 2006; Carstensen & Mikels, 2005; Löckenhoff & Carstensen, 2004). Hence, the positivity effect in which older adults remember more positive information than young adults; less negative information (reduced negativity bias); or both, is viewed as a cognitive motivational effect regulating emotion in old age. Older adults who are higher in cognitive functioning have also been found to show a stronger positivity effect (Mather & Knight, 2005), which supports the cognitive component of this theory. In our study, we primarily examined whether the motivational hypothesis of this theory would generalize to a culture that is plagued by war-related uncertainty, danger, and shorter lifespan (Miller et al., 2008; Welsh & Brodsky, 2010). According to recent publications by Reed and Carstensen (2012) and Fung (2013), although this motivational factor of SST stays constant across cultures, what is considered meaningful may differ. Therefore, in a war-torn country like Afghanistan an age-related positivity effect may not be observed, simply because both positive and negative information are meaningful and important to the well-being of the people and community.

Our hypothesis was supported by our data – The positivity effect was not found in Afghan participants at all. Afghan older adults recalled similar number of neutral pictures compared to emotional ones, which suggests that the emotional aspects of the stimuli may be less salient to them.

Our results may also be explained by the Affect Valuation Theory (Tsai, Knutson, & Fung, 2006). According to this theory, cultures differ in the value placed in emotional states. Westerners from individualistic cultures tend to place a higher emphasis on high-arousal, positive material than do East Asians from collectivistic cultures. Although most individuals show an emotional enhancement effect (remembering more emotional than neutral information), people from the West and the East may differ on the type of information remembered due to their different valence interpretation of the same materials.

This may explain the absence of emotional enhancement displayed by our Afghan older participants.

Recent studies also suggest a cultural difference between western and eastern cultures on poignancy (Zhang, Erner-Hershfield, & Fung, 2010). Poignancy is defined as a mixed emotional experience that arises when one faces meaningful endings (Ersner-Hershfield, Mikels, Sullivan, & Carstensen, 2008). According to SST, people tend to feel more poignancy as they grow older (Carstensen, 2006). Zhang et al. (2010) found that Chinese older adults did not show the age-related poignancy effect found in the US. Furthermore, Chinese older adults who used an emotion regulation strategy, such as cognitive reappraisal, to reinterpret the anticipated ending were much less likely to show the poignancy effect.

Based on these past results, we may in fact predict no positivity effect in memory for Afghan adults because of their Central Asian/Middle Eastern, collectivistic roots. Afghan older adults might have regulated their emotion and memory in such a way that neutral information took precedence. In fact, these results resembled ones that were found in Hong Kong, another East Asian country (Chung et al., 2014). For Afghan older adults, however, negative information was still significantly more salient than positive information, possibly due to the on-going negativity created by the war.

In future studies, we aim to examine the roles of cognitive reappraisal and stress in US and Afghan adults to further understand the basis of the present findings. We would also like to verify that Afghan participants would indeed rate the picture task stimuli similarly to US participants. As reassurance, however, past studies did not reveal any cultural differences in the way participants in US, China, and Hong Kong rated the pictures in both valence and arousal, possibly because these pictures were of rather universal objects and scenes (Chung & Lin, 2012; Chung et al., 2014). To the best of our knowledge, this is the first cross-cultural emotional memory study comparing Afghan and US adults. Although exploratory, the present results shed light on our understanding of emotional memory processing in non-Western cultures and provided insight into cross-cultural emotional memory theory development. Furthermore, this study contributes to a small but growing body of work on psychological measures in conflict situations. It highlights the interconnectedness of emotional memory and culture, and demonstrates the relevance of cross-cultural cognitive studies in formulating mental health interventions for people living in conflict situations.

REFERENCES

Beck, A. T., Ward, C. H., Mendolson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Carstensen, L. L. (1993). Motivation for social contact across the life span: A theory of socioemotional selectivity. In J. E. Jacobs (Ed.), *Nebraska Symposium on Motivation* (pp. 209-254). Lincoln: University of Nebraska Press.

Carstensen, L. L. (2006). The influence on a sense of time on human development. *Science, 312*, 1913-1915.

Carstensen, L.L., & Mikels, J.A. (2005). At the intersection of emotion and cognition: Aging and the positivity effect. *Current Directions in Psychological Science, 14*, 117-121. doi: 10.1111/j.0963-7214.2005.00348.x

Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology, 79*, 644–655.

Charles, S. T., Mather, M., & Carstensen, L. L. (2003). Aging and emotional memory: the forgettable nature of negative images for older adults. *Journal of Experimental Psychology: General, 132*, 310-324. doi: 10.1037/0096-3445.132.2.310

Chung, C. (2010). Effects of view of life and selection bias on emotional memory in old age. *GeroPsych: The Journal of Gerontopsychology and Geriatric Psychiatry, 23*(3), 161-168. doi: 10.1024/1662-9647/a000019

Chung, C., & Lin, Z (2012). A cross-cultural examination of the positivity effect in memory: United States vs. China. *International Journal of Aging and Human Development, 75*(1), 31-44.

Chung, C., Yip, A. P. Y., & Lin, Z. (2014). Cross-cultural examination of the positivity effect in old age: US, China, and Hong Kong. *Manuscript submitted for publication.*

Cockrell, J. R., & Folstein, M. F. (1988). Mini Mental State Examination (MMSE), *Psychopharmacology, 24*, 689-692.

Cohen, D., & Kitayama, S. (2007). *Handbook of Cultural Psychology*. New York: The Guilford Press.

Comblain, C., D'Argembeau, A., Van der Linden, M., & Aldenhoff, L. (2004). The effect of ageing on the recollection of emotional and neutral pictures. *Memory, 12*, 673-684. doi: 10.1080/09658210344000477

Crockett, W.H., & Hummert, M.L. (1987). Perceptions of aging and the elderly. *Annual Review of Gerontology and Geriatric, 7*, 217-241.

Eggerman, M., & Panter-Brick, C. (2010). Suffering, hope and entrapment: resilience and cultural values in Afghanistan. *Social Science and Medicine, 71*(1), 71-83.

Ersner-Hershfield, H., Mikels, J. A., Sullivan, S. J., & Carstensen, L. L. (2008). Poignancy: Mixed emotional experience in the face of meaningful endings. *Journal of Personality and Social Psychology*, *94*(1), 158-167. doi:10.1037/0022-3514.94.1.158

Field, D. (1981). Retrospective reports by healthy intelligent elderly people of personal events of their adult lives. *International Journal of Behavioral Development, 4*, 77-97. doi: 10.1177/016502548100400106

Fung, H. H. (2013). Aging in culture. *The Gerontologist*, *53*(3), 369-377. doi:10.1093/geront/gnt024

Fung, H.H., Carstensen, L.L., & Lutz, A.M. (1999). Influence of time on social preferences: Implications for life-span development. *Psychology and Aging, 14*, 595-604. doi:10.1037/0882-7974.14.4.595

Fung, H. H., Lu, A. Y., Goren, D., Isaacowitz, D. M., Wadlinger, H. A., & Wilson, H. R. (2008). Age-related positivity enhancement is not universal: Older Chinese look away from positive stimuli. *Psychology and Aging, 23*, 440-446. doi: 10.1037/0882-7974.23.2.440

Goodson, P. L. (2001). Afghanistan's endless war: state failure, regional politics, and the rise of the Taliban. Seattle, Washington: University of Washington Press.

Ghufran, N. (2006). Afghanistan in 2005: The Challenges of Reconstruction. *Asian Survey, 46*, 85-94.

Kennedy, Q., Mather, M., & Carstensen, L. L. (2004). The role of motivation in the age-related positivity effect in autobiographical memory. *Psychological Science, 15*, 208-214. doi:10.1111/j.0956-7976.2004.01503011.x

Kensinger, E. A., Brierly, B., Medford, N., Growdon, J. H., & Corkin, S. (2002). Effects of normal aging and Alzheimer's disease on emotional memory. *Emotion, 2*, 118-134. doi: 10.1037/1528-3542.2.2.118

Kensinger, E.A., & Leclerc, C.M. (2009). Age-related changes in the neural mechanisms supporting emotion processing and emotional memory. *European Journal of Cognitive Psychology, 21*, 192-215. doi: 10.1080/09541440801937116

Koval, P., & Kuppens, P. (2012). Changing emotion dynamics: Individual differences in the effect of anticipatory social stress on emotional inertia. *Emotion, 12*(2), 256-267. doi:10.1037/a0024756

Kwon, Y., Schiebe, S., Samanez-Larkin, G. R., Tsai, J. L., & Carstensen, L. L. (2009). Replicating the positivity effect in picture memory in Koreans: Evidence for Cross-Cultural Generalizability. *Psychology and Aging, 24*, 748-754. doi: 10.1037/a0016054

Löckenhoff, C. E., & Carstensen, L. L. (2004). Socioemotional selectivity theory, aging, and health: The increasingly delicate balance between regulating emotions and making tough choices. *Journal of Personality, 72*(6), 1395-1424. doi:10.1111/j.1467-6494.2004.00301.x

Mather, M., & Carstensen, L.L. (2003). Aging and attentional biases for emotional faces. *Psychological Science*, *14*, 409–415.

Mather, M., & Carstensen, L. L. (2005). Aging and motivated cognition: The positivity effect in attention and memory. *Trends in Cognitive Sciences, 9*, 496-502.

Mather, M., & Johnson, M. K. (2000). Choice-supportive source monitoring: Do our decisions seem better to us as we age? *Psychology and Aging, 15*, 596-606. doi: 10.1037//0882-7974.15.4.596

Mather, M., & Knight, M. (2005). Goal-directed memory: The role of cognitive control in older adults' emotional memory. *Psychology and Aging, 20*, 554-570. 10.1037/0882-7974.20.4.554

Miller, K. E., Omidian, P., Rasmussen, A., Yaqubi, A., & Daudzai, H. (2008). Daily stressors, war experiences, and mental health in Afghanistan. *Transcultural Psychiatry*, *45*(4), 611-638. doi:10.1177/1363461508100785

Nisbett, R. (2003). *The Geography of Thought: How Asians and Westerners Think Differently...and Why*. New York: The Free Press.

Panter-Brick, C., Eggerman, M., Gonzalez, V., & Safdar, S. (2009). Violence, suffering, and mental health in Afghanistan: a school-based survey. *The Lancet*, *374*(9692), 807-816. doi:10.1016/S0140-6736(09)61080-1

Quinn, K., Mather, M., & Carstensen, L. L. (2004). The role of motivation in the age-related positivity effect in autobiographical memory. *Psychological Science, 15*(3), 208-214. doi: 10.1111/j.0956-7976.2004.01503011.x

Rasanayagam, A. (2009). *Afghanistan: a modern history*. New York, NY: I.B Tauris & Co Ltd.

Reed, A., & Carstensen, L. L. (2012). The theory behind the age-related positivity effect. *Frontiers in Psychology, 3*, 1-9. doi: 10.3389/fpsyg.2012.00339.

Rubin, B. R. (1995). *The fragmentation of Afghanistan: State formation and collapse in the international system*. New Haven, CT: Yale University Press.

Schlagman, S., Schulz, J., & Kvavilashvili, L. (2006). A content analysis of involuntary autobiographical memories: Examining the positivity effect in old age. *Memory, 14*(2), 161-175. doi: 10.1080/09658210544000024

Sharifi, F., Chung, C., Mahinda, E., Johnson, J., & Wong, S.A. (2011). Emotional Memory in Women: Why a Negativity Bias? *Journal of Psychology and Behavioral Sciences, 22,* 36-42.

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology*, *90,* 288 –307. doi: 10.1037/0022-3514.90.2.288

Wagenaar, W. A., & Groeneweg, J. (1990). The memory of concentration camp survivors. *Applied Cognitive Psychology, 4,* 77-87. doi: 10.1002/acp.2350040202

Wechsler, D. (1997). Wechsler Memory Scale- III. San Antonio, TX: The Psychological Corporation.

Welsh, E. A., & Brodsky, A. E. (2010). After every darkness is light: Resilient Afghan women coping with violence and immigration. *Asian American Journal of Psychology*, *1*(3), 163-174. doi:10.1037/a0020922

Zhang, X., Ersner-Hershfield, H., & Fung, H. H. (2010). Age differences in poignancy: Cognitive reappraisal as a moderator. *Psychology and Aging*, *25*(2), 310-320. doi:10.1037/a0019078

Zelinski, E. M., & Gilewski, M. J. (2004). A 10-item Rasch modeled memory self-efficacy scale. *Aging and Mental Health, 8,* 293-306. doi: 10.1080/ 13607860410001709665

APPENDIX A: A SAMPLE PICTURE ENCODING LIST

Picture Name	Valence
Antarctic landscape	Filler (positive)
Cassette tape	Filler (neutral)
Lotus flower	Positive
Loaf of bread	Neutral
Palm trees	Positive
Shipwreck	Negative
Grey House	Neutral
Merry-go-round	Positive
Scarves in market	Neutral
Rotten strawberry	Negative
Dirty dishes in sink	Negative
Chocolate dessert	Positive
Hotel room	Positive
Window	Neutral
Smoke in distance	Negative
Bulletin board	Neutral
Gun	Negative
Tornado	Negative
Office	Neutral
Chair	Neutral
Birthday cake	Positive
Park	Neutral
Earthquake	Negative
Pile of letters	Neutral
Fireworks	Positive
Outdoor pool	Positive
House on fire	Negative
Waterfall	Positive
Champagne and glasses	Positive
Shark bite	Negative
Gymnasium	Neutral
Car accident	Negative
Blood in drain	Filler (negative)
Bridge	Filler (neutral)

APPENDIX B: SAMPLE SCENE PICTURES FROM EACH VALENCE

Positive (Fireworks)

Neutral (Park)

Negative (Earthquake)

AUTHOR INFORMATION:

Frishta Sharifi holds a Master of Science degree in Counseling from California State University, East Bay and a Bachelor of Arts degree in Psychology from Mills College. She is interested on women's emotional memory and cross–cultural research on emotional memory. She works in Fremont hospital (California) and is a Senior Research Assistant at Mills College Cognition Laboratory. Address: Frishta Sharifi, Mills Cognition Laboratory, Mills College Psychology Department, 5000 MacArthur Blvd., Oakland, CA 94613. Email: fsharifi@mills.edu.

Christie Chung is an Associate Professor of Psychology at Mills College. Her research interest focuses on emotional memory changes in old age and how cognition may be shaped by factors such as culture, religion, weight consciousness, and sexual orientation. She directs the Mills Cognition Laboratory and has several on-going studies on these topics. Address: Dr. Christie Chung, Mills College Psychology Department, 5000 MacArthur Blvd., Oakland, CA 94613. Email: cchung@mills.edu. Website: www.millscognition.com.