AN EMPIRICAL VALIDATION OF THE METHODOLOGY FOR MEASURING SELF-PERCEIVED AGE IN THE MIDDLE EASTERN MARKET

Richard A. Heiens
University of South Carolina Aiken
Richardh@usca.edu

Larry P. Pleshko
Kuwait University, Kuwait City, Kuwait
LarryPleshko@yahoo.com

_____

Abstract

The authors present and validate a method for measuring cognitive age in the Middle Eastern market. The proposed cognitive age measure appears to show internal consistency, reliability, and correlation with actual chronological age. Specifically, cognitive age is only slightly lower on average than actual chronological age among Middle Eastern consumers, and these differences are much less pronounced than has been found in previous cross-cultural studies. The cognitive age measure also demonstrates predictive validity regarding consumption behavior in the retail coffee industry. The findings show that as both measures of age increase, buyers are satisfied with a greater percentage of retailers. Nevertheless, as both forms of age increase, consumers visit fewer coffee shops per year. Although they tend to make fewer visits, both cognitively and chronologically older consumers spend more money on each retail coffee shop visit. In addition,

total coffee consumption increases with increased cognitive and chronological age, presumably driven by greater consumption in non-retail venues.

Keywords

Cognitive Age, Chronological Age, Retail Coffee Consumption, Middle Eastern Market

1. Introduction

The most basic and obvious way to measure age is through one's actual chronological age. However, it has long been argued that people may instead perceive their aging to occur at different rates (Clark, 1967; Barak and Schiffman, 1981; Moschis and Mathur, 1993). For some consumers, this may be because old age is often viewed as a stigma. Consequently, it has long been argued that the aging individual may come to regard his or her advancing years with the same negative attitudes held by the rest of society (Anderson, 1967). Thus, to disassociate themselves from an undesirable sub-group, the aged in our society often tend to identify more with younger age segments than with their own age cohorts (Eastman and Iyer, 2012; Van Auken, Barry and Bagozzi, 2006). In fact, it has consistently been demonstrated that older consumers often have self-perceived ages that are 10 years or more below their chronological ages (Barak and Schiffman, 1981; Catterall and Maclaran, 2001). In fact, for much of a consumer's adult life, self-perceived age tends to lag chronological age, at least until the decline of one's health forces us to acknowledge the chronological reality (Van Auken, Barry and Bagozzi, 2006).

Therefore, marketers may wish to consider using self-perceived age as an alternative age-related segmentation variable. However, to effectively use the construct of self-perceived age, it is necessary to accurately identify the construct, isolate its components, and clearly define the procedure for the construct's operationalization. To do so, it is appropriate to follow the classic procedure first outlined by Churchill (1979) for properly specifying and validating marketing constructs. The procedure begins with the conceptual specification of the construct and ends with the collection of data in order to test the reliability and validity of the measures employed. Consistent with this approach, the purpose of this study is to present a simple but valid method for measuring self-perceived age in the Middle Eastern market.

The authors begin with a review of the "cognitive age" construct, perhaps the most widely utilized self-perceived age measure in the field of marketing (Iyer et al. 2017). Although the standard scale items used to capture the various sub-dimensions of the cognitive age construct have been consistently utilized in a variety of international studies, additional scale items have been proposed over the past several decades. This has led to uncertainty regarding the most appropriate number and form of the scale items, especially when applying the scale in foreign cultures. Moreover, the cognitive age construct has not been previously validated in the unique Middle Eastern market. Therefore, the important contribution of the current study is to identify the specific dimensions of the cognitive age construct which exhibit the highest degree of reliability and to clarify the actual scale items most reflective of the broader cognitive age construct as it applies to the Middle Eastern market. The study goes on to compare the re-conceptualized cognitive age scale to the standard measure of chronological age in the Middle Eastern coffee market, a retail setting with global relevance (Rashid, Ghose, and Cohen, 2015). Specifically, the proposed scale is tested against a variety of retail coffee consumption-related variables to help determine its predictive validity.

2. Literature Review

Because consumers often fail to identify with their true age group, chronological age may be difficult to employ as a predictor variable. Hence, researchers have long advocated the use of modified age measures to supplement or even replace the standard measure of chronological age. Working primarily in the field of social gerontology, early re-conceptualizations of age have included biological age, an estimate of an individual's present position with respect to his or her potential life span (Jarvik, 1975); social age, the age of an individual as defined in terms of social roles and habits (Birren and Renner, 1977); and other-perceived age, the subjective evaluation of the age status of an individual as assessed by others (Lawrence, 1974). However, alternative age measures which tap a consumer's own self-perceptions may be most appropriate when attempting to understand consumer motives and consumption patterns (Barak and Schiffman, 1981). Consequently, of the various age-related constructs that have been proposed, self-perceived age may best serve as a basis for consumer segmentation.

The theoretical basis for the notion that one's age may be subjectively determined is self-concept theory. Self-concept theory recognizes that an individual tends to possess a wide variety

of thoughts and feelings regarding himself or herself as a distinct "attitude object" (Rosenberg, 1979). Consumers often seek to reinforce their self-concepts, and actively pursue lifestyles and engage in behaviors that are congruent with their self-concepts (Markus and Wurf, 1987). Sirgy (1982) suggests that self-consistency and self-enhancement are the mechanisms that often motivate and direct a wide variety of these congruent consumer behaviors. Thus, a consumer's self-concept can be a powerful driver of marketplace behavior. Self-concept theory acknowledges that the thoughts and feelings that serve as the basis for one's self-concept are perceived subjectively, and this is certainly true when considering the self-assessment regarding one's "age" (Barak and Gould, 1985).

Evidence for the subjective self-assessment of age comes from numerous studies that indicate that the percentage of people who perceive themselves exactly at their actual chronological age is relatively low (Chang, 2008; Eastman and Iyer, 2012; Teller, Gittenberger and Schnedlitz, 2013). Given the widespread tendency for consumers to disregard their true ages in favor of their own self-perceptions, it becomes apparent that one's self-perceived age may be a better predictor of age-related psychological states, attitudes, or behavioral tendencies than chronological age (Iyer and Reisenwitz, 2010; Moschis and Mathur, 2006; Teller, Gittenberger and Schnedlitz, 2013). In fact, Guido, Amatulli, and Peluso (2014) conclude that one's self-perceived age can affect decision processes even more than one's real age. Moreover, the tendency to hold age-related self-perceptions that are inconsistent with one's actual chronological age has been observed in several diverse markets, including France (Guiot, 2001), Australia (Cleaver and Muller, 2002), Japan (Van Auken, 2006), China (Wei and Talpade, 2009), the United Kingdom (Sudbury and Simcock, 2009), and South Korea (Barak et al., 2011). Nevertheless, despite the large number of international studies on self-perceived age, none to date have looked at the Middle Eastern market.

Early on, self-perceived age measures tended to focus on an individual's self-perceptions in terms of broadly defined reference age groups such as "middle-aged", "elderly", or "old". However, broadly defined self-perceived age measures are inherently ambiguous and difficult to define in commonly accepted units such as years, making most traditional measures of self-perceived age difficult to incorporate as a basis for age related market segmentation. In the 1980s, however, researchers in the field of consumer behavior began to emphasize a new form of self-perceived age, known as "cognitive age", which measures an individual's age self-perceptions on

several dimensions (Barak and Schiffman, 1981; Barak and Gould, 1985). As originally developed by Barak and Schiffman (1981), the "cognitive age" construct was initially comprised of four sub-dimensions, "feel-age", "look-age", "act/do-age", and "interest-age", each of which were combined into an overall assessment of one's cognitive age. Over the years, additional scale items and sub-dimensions have been proposed. For instance, Heiens (1991) proposed the inclusion of multiple scale items for each of the four basic sub-dimensions, while Clark, Long, and Schiffman (1999) extended the construct by adding the dimensions of "health age" and "think age". In addition, researchers have used a variety of different measurement techniques to capture the construct, including ratio scales, semantic differential scales, Likert scales, and age-decade scales (Clark, Long and Schiffman, 1999; Eastman and Iyer, 2012; Van Auken, Barry and Bagozzi, 2006). Therefore, there are questions concerning both the appropriate number of dimensions and the appropriate measurement procedure that should be used to represent the cognitive age construct. This is especially true when considering cognitive age within the context of the unique and previously unstudied geographic and lifestyle markets of the Middle East.

3. Sample and Data Collection

To test the reliability and validity of the cognitive measure in the context of Middle Eastern retail market-related consumer behavior, the data for the current study were obtained from a group of coffee consumers in the Kuwait market. At the time of this study, thirty-nine separate coffee shop retailers were operating in the Kuwait market. Also, most of the coffee shop retailers operated in multiple locations. In total, these thirty-nine retailers were operating two hundred and fifty coffee shops. The list of coffee retailers was derived from the Kuwait Chamber of Commerce and from exploratory interviews with student subjects attending the largest university in the country.

Because it was important to provide a representative sample, some sampling criteria were used to select respondents. The authors used age and gender to provide guidelines for selecting a sample to match the population. Secondary data sources were used to determine the percentage of adults to be included in each age and gender category (CIA World Fact book 2011, Kuwait Public Authority for Civil Information 2011). A chi-squared test revealed no differences in age and gender between the sample and the overall population ($X^2 = 2.03$, $p = 0.37$).

Data for the project were collected using personal interviewers to administer a standard questionnaire. A variety of volunteer and paid workers were trained and assigned the task of collecting the data. In total, seventy interviewers gathered data from respondents selected primarily from among their family and friends. As the study was focused solely on adult consumers, one important stipulation was that respondents include only those individuals aged eighteen years or above. A total of six-hundred and eighteen usable respondent surveys were gathered.

4. Measurement of Cognitive Age

Because of the many previous research studies confirming the use of the cognitive age construct as an effective measure with which to quantify self-perceived age in a variety of cross-cultural settings, including both western and non-western countries, the cognitive age construct served as the starting point from which to measure self-perceived age in the Kuwait market as well. In a similar manner to chronological age, cognitive age is typically measured in years. However, the construct indicates how old the respondents consider themselves to be irrespective of their chronological ages. Measuring self-perceived age in terms of years has the advantage of "scale-level", which makes the construct useful with higher-level analyses such as *t*-tests of mean differences, analysis of variance, and correlation analysis. Furthermore, the cognitive age scale must be shown to be not just a nominal scale, but an interval or ratio scale. Interval scales exhibit no true origin, but do have the characteristic of order and equal distance between the scale points. On the other hand, as well as having the characteristic of order and equal distance between the scale points, ratio scales have the additional advantage of a true origin (Hair et al., 2013). Considering the similarity to chronological age, it is expected that the cognitive age measure is a ratio scale variable.

To identify the actual questionnaire items to include in our cognitive age measure (Age_{cog}), a focus group of twelve Kuwaiti respondents were initially asked about the various components that have been proposed to measure cognitive age, including "feel-age", "look-age", "act/do-age", "interest-age", "health age", and "think age". Their feedback suggested that the "feel-age" and "health age" dimensions were conceptually very similar. Consequently, the final questionnaire was designed to ask respondents to answer only five questions pertaining to the "feel-age", "look-age", "act/do-age", "interest-age", and "think age" dimensions. Moreover, the focus group

participants indicated a preference for the use of age decade scales. Consequently, as shown below, respondents were asked to choose one of the following scale points for each question: "teens", "20s", "30s", "40s", "50s", "60s", or "70s or older". No lower category is included since the sampling frame included only those eighteen years or older. No "zero" is included for obvious reasons. For each question the scale values were assigned as the midpoint of each choice, except for the "teens" and "70s and older" categories. This resulted in the following scale values: "teens" = 17, "20s" = 24.5, "30s" = 34.5, "40s" = 44.5, "50s" = 54.5, "60s" = 64.5, and "70s or older" = 75. This allowed the authors to calculate a summary Age_{cog} value for each respondent in the final survey. The five questions, along with the scale choices and instructions, were as follows:

> *Please answer each of the following five questions regarding your perceptions of your age by circling one of the categories shown.*
>
> (1) I feel like I am in my ………………………… "teens", "20s", "30s", "40s", "50s", "60s", "70s or older"
>
> (2) I look like I am in my ………………………… "teens", "20s", "30s", "40s", "50s", "60s", "70s or older"
>
> (3) I act like I am in my…………………………… "teens", "20s", "30s", "40s", "50s", "60s", "70s or older"
>
> (4) My interests are like those of a person in their… "teens", "20s", "30s", "40s", "50s", "60s", "70s or older"
>
> (5) I think like a person in their………………… "teens", "20s", "30s", "40s", "50s", "60s", "70s or older"

For the sample under study, an estimate of Age_{cog} in years was calculated for each respondent by averaging each of the five items. Only whole numbers were used so that, for example, a respondent was given a cognitive age score of "28" rather than "28.35". This is consistent with how society gives responses to age questions – "I am 33" and not "I am 33.7". The range of Age_{cog} was from 17 to 68 with a mean of 33.53 years, a standard deviation of 10.769, and a standard mean error of 0.434.

Although we assume that the Age_{cog} measure results in ratio-scale data, the transformation of lower-level data into higher-level interval or ratio scales has a long history in scaling research (Thurstone 1927, Emory 1980). The authors would argue the Age_{cog} scale to be ratio-level as the scale appears to meet the following criteria: (i) the scale points could be adapted to have a true zero, (ii) there is order between the scale points, and (iii) known and equal distances are shown for the points. The only possible "distance" exceptions would be regarding to the first (teens) and last (70s or older) categories. Each of these exceptions could be dealt with by adding a response choice for each.

5. Other Measures

To help validate the cognitive age construct, actual chronological age (Age_{chr}) is used as a comparison age variable. As previously discussed, chronological age refers to the true age of a respondent as measured in years. To collect the data regarding chronological age, respondents were asked to indicate their year of birth. This method is a popular approach used in survey research. That is because having a respondent write down their year of birth is expected to lead to a more honest response than one typically receives by simply asking the respondent's age. The range of Age_{chr} was from 18 to 70 with a mean of 34.69 years, a standard deviation of 13.291, and a standard mean error of 0.540.

As retail consumption-related variables are used to assess criterion-related validity, four variables were included in the study: (i) percent of coffee retailers with which the buyer is satisfied, (ii) number of visits per year to a Kuwait coffee shop, (iii) average spending per visit, and (iv) the number of coffee drinks consumed per day. These items are included to determine if the Age_{cog} indicator acts in the same manner as the comparison age indicator, Age_{chr}.

The percent of coffee retailers with which the buyer is satisfied ($Sat_{\%}$) was derived by taking the number of satisfactory brands divided by the number of brands that the respondent is currently using. A buyer was considered satisfied with a given coffee retailer if the satisfaction score for the brand was greater than five on a ten-point scale. Therefore, for each respondent, the procedure involved totaling the number of coffee retailers with which the respondent was satisfied and then dividing by the number of coffee retailers they were currently using. The range for $Sat_{\%}$ was 10.5% to 100% with a mean of 0.769, a standard deviation of 0.217, and a standard mean error of 0.009.

The number of visits to coffee shops per year ($Visits_{tot}$) was derived by asking respondents to estimate their usage in the most recent three-month period and then adjusting it for a full year. $Visits_{tot}$ ranged from 3 to 780 visits to coffee shops per year with a mean of 131.73, a deviation of 144.696, and standard mean error of 5.821. These numbers might seem high but are likely to be correct given that coffee shops in Kuwait serve an important social function. Due to the Islamic prohibition on the consumption of alcohol and the corresponding absence of bars or other meeting places that might normally serve alcoholic drinks, coffee shops serve as important meeting places for many people.

The amount of money that a respondent spends per visit (Spend) is measured in Kuwaiti Dinars (Kd). Each respondent was asked to estimate the average amount of money that he or she spends during each visit by writing the number of dinars in a blank space. The variable Spend ranged from 1 to 20 Kd with a mean of 4.34, a standard deviation of 2.472, and a standard mean error of 0.099.

Finally, respondents were asked to estimate the average number of coffee drinks they consumed per day ($Cofi_{day}$). The methodology also allowed respondents to provide responses in the form of fractions (i.e. 1/week). The coffee drinks could be consumed in any venue. The $Cofi_{day}$ ranged from 0.008 to 10 with a mean of 2.07, a standard deviation of 1.462, and a standard mean error of 0.059.

6. Analyses

The first step in the analysis of the proposed cognitive age measure is to demonstrate that Age_{cog} is a consistent and reliable variable. To test for internal consistency, the five items were subjected to a principal-components factor analysis. The results reveal a single factor explaining 83.5% of the original variance. Cronbach's coefficient alpha statistic was shown to be 0.949 for the five items in our proposed scale. It is generally accepted that a measurement instrument with an alpha coefficient that exceeds of .70 exhibits high reliability (Yin et al. 2016). Therefore, these results are indicative of an internally consistent and reliable measurement instrument. In fact, the alpha score exceeds the findings for the version of the cognitive age scale recently used by Barak et al. (2011) in a study across three countries. Specifically, utilizing only four scale items (feel-age, look-age, act/do-age, and interest-age), Barak et al. (2011) obtained an alpha coefficient of 0.896 for a Korean sample of consumers, 0.913 for a French sample, and 0.930 for a Chinese sample. Therefore, the Cronbach internal consistency estimate of reliability for our proposed cognitive age measurement instrument exceeds the results obtained in each of these samples.

While the calculation of Cronbach's alpha coefficient may be a strong indicator of internal consistency, the process of construct validation also includes the necessary step of giving meaning to abstract concepts in terms of observable variables. Thus, to establish the construct validity of the proposed cognitive age measure, we must determine the extent to which Age_{cog} correlates with other measures of similar constructs. The most obvious similar construct to consider is actual chronological age, or Age_{chr}. As separate, but related, constructs, we would expect a strongly

positive, yet not perfectly unitary, correlation between the two measures. This is what we observed, as Age_{chr} and Age_{cog} exhibited a Pearson correlation, *"r"*, of +0.88 (*"p"* < 0.01). A test of mean differences reveals that within the sample, Age_{chr} (34.69 years) is slightly greater than Age_{cog} (33.53 years) with a difference of 1.16 years (*"t"* = 4.18; *"p"* < 0.01). This suggests that they are different constructs. In other words, the respondents generally perceive their cognitive ages to be a bit younger than their biological ages, with the difference in the two age constructs being small, yet statistically significant.

Finally, as specified by Churchill (1979), one additional validity check involves criterion-related validity. Criterion-related validity refers to the ability of a scale to accurately predict behavior. It is ascertained by correlating a proposed measure with a direct measure of another characteristic under investigation. To demonstrate criterion-related validity for our proposed cognitive age measure, it is necessary to show that the Age_{cog} measure acts in relation to some set of outcome variables in a manner that might be theoretically expected. In addition, given the conceptual similarity of the Age_{cog} and Age_{chr} variables, it is desirable to show that Age_{cog} correlates with the outcome variables in the same manner as Age_{chr}.

Older consumers are often motivated by the need for social interaction. In fact, Myers and Lumbers (2008) report that older consumers often engage in shopping for both socialization and leisure. In the Kuwait market, coffee shops are frequently used as social gathering places, especially among older consumers. Consequently, coffee shops may fulfill an important lifestyle need for older Kuwaiti consumers. Therefore, we expect the percent of retailers with which the buyer is satisfied to increase as both measures of age increase.

> H_{1a}: *As chronological age increases, $Sat_\%$ increases.*
>
> H_{1b}: *As cognitive age increases, $Sat_\%$ increases.*

Mathur & Moschis (2005) report that consumers who feel relatively older tend to live less active lifestyles. It has also been shown that older consumers are less mobile than their younger counterparts (Karani and Fraccastoro, 2010). Therefore, we expect that as both forms of age increase, the total number of visits to coffee shops per year will decrease.

> H_{2a}: *As chronological age increases, $Visits_{tot}$ decreases.*
>
> H_{2b}: *As cognitive age increases, $Visits_{tot}$ decreases.*

In general, as consumers grow older, income levels tend to increase, at least until one enters the retirement years, and greater career success may drive higher cognitive age self-perceptions. Also, age has a positive impact on consumer spending as well (Green and

Hendershott, 2007). Specifically, households headed by persons older than age 40 tend to spend relatively more on retail than households headed by persons under the age of 40. Consequently, we expect that as both forms of age increase, the amount of money that a respondent spends per retail coffee shop visit will also increase.

H_{3a}:   *As chronological age increases, Spend increases.*

H_{3b}:   *As cognitive age increases, Spend increases.*

Coffee consumption can be thought of as a ritualized experience associated with pleasure, companionship and extended relationships (Richelieu and Korai, 2014). There is also a strong likelihood that the ritualistic and symbolic associations linked to coffee consumption may gradually develop. In addition, many long-term studies have begun to emerge suggesting that coffee has many health benefits, including reducing the risk of dying early from heart attacks or strokes, and protecting against some types of cancers (Lee, 2009). Therefore, we expect that as age increases, total coffee consumption will also increase.

H_{4a}:   *As chronological age increases, $Cofi_{day}$ increases.*

H_{4b}:   *As cognitive age increases, $Cofi_{day}$ increases.*

Table 1 shows the correlations of both Age_{cog} and Age_{chr} with the retail consumption variables described in the hypotheses. Note that the "n" values are between 613 and 616 for each correlation. As shown in the table, Age_{cog} and Age_{chr} are significantly correlated with each of the five outcome variables. Additionally, the direction of the correlations is similar between the age indicators. Therefore, Age_{cog} is shown to act regarding these variables in the same manner as Age_{chr}, lending support to the criterion-related predictive validity of the proposed cognitive age measure.

Table 1: *Correlations of AGE_{cog} and AGE_{chr} with Coffee Consumption Variables*

		Age_{chr}	Age_{cog}	Findings
$Sat_\%$	*"r"*	0.157	0.147	* as Age increases, people are satisfied
	"p"	< 0.01	< 0.01	with more of their retail choices
$Visits_{tot}$	*"r"*	-0.281	-0.241	* as Age increases, people visit coffee
	"p"	< 0.01	< 0.01	shops less often
Spend	*"r"*	0.156	0.147	* as Age increases, so does the
	"p"	< 0.01	< 0.01	amount spent in coffee shops
$Cofi_{day}$	*"r"*	0.154	0.161	* as Age increases, people drink
	"p"	< 0.01	< 0.01	more coffee

7. Discussion and Managerial Implications

The purpose of this manuscript was to address questions concerning both the appropriate number of dimensions and the appropriate measurement procedure that should be used to represent the cognitive age construct when applied to the Middle Eastern market. As such, we introduced a re-conceptualized version of the cognitive age construct, Age_{cog}, that contained five sub-dimensions, including feel-age, look-age, act/do-age, interests-age, and think-age. Additionally, the study demonstrates that this measure is a reliable and valid indicator of self-perceived age for Middle Eastern consumers. Furthermore, this study validated the proposed construct by presenting evidence that Age_{cog} is internally consistent, reliable, correlated with chronological age, and acts on consumer retail consumption variables in the same manner as chronological age.

Our study demonstrates that, consistent with chronological age, as Age_{cog} increases, Middle Eastern consumers are satisfied with more of their retail choices. Also, as age increases, people visit retail coffee shops less often. Nevertheless, as age increases, the amount of money spent in retail coffee shops per visit tends to increase. Finally, as age increases, people tend to drink more coffee. Therefore, older Middle Eastern consumers, although they make fewer visits overall to retail coffee shops, appear to enjoy their retail visits. This translates into greater retail spending and higher overall coffee consumption. Their retail visits might be described as more engaging retail encounters. Rather than making numerous quick stops for coffee, these consumers may immerse themselves more fully in the coffee experience. Moreover, coffee consumption may also be extended to other venues beyond retail coffee shops, such as the home. Perhaps the most interesting aspect of our findings is that these behavioral patterns tend to be associated not only with chronological age, but with cognitive age as well. Therefore, both actual and self-perceived age tend to have a similar impact on consumer behavior for the Middle Eastern consumer.

Another interesting result is the strong similarity found between cognitive and chronological ages in our sample. Most studies on cognitive age report age self-perceptions well below actual chronological ages. In fact, Chang (2008), in a study focusing on younger consumers, discovered that many respondents also reported feeling younger than their chronological age. Consistent with the preponderance of studies on chronological age, Middle Eastern respondents also tended to perceive themselves as younger than their chronological ages. However, the reported differences between the two constructs were much smaller than what has been previously found in many other studies. When studying senior consumers, studies typically

report differences of 10 or more years between the two age constructs. For example, in a sample of French seniors, Guiot (2001) found an average difference of 11.97 years. In a recent study of elderly Western Europeans, Teller et al. (2013) found an average age difference of 10.83 years, while in an Australian sample of seniors, Cleaver and Muller (2002) found an average difference of 10.2 years. Even when studying a broad cross section of consumers in different chronological age categories, average differences between the two age-oriented constructs are typically larger, with most respondents reporting cognitive ages in the range of 3 to 5 years below chronological age (Barak et al., 2011). Instead, with an average cognitive age only 1.16 years below chronological age, the age self-perceptions of Middle Eastern consumers appear to be much closer to their actual ages. This small difference between Age_{chr} and Age_{cog} may be due to the expanded sampling frame for this study which focuses on all adults, rather than just seniors who usually show a larger gap.

An alternative explanation for the findings on age may be cultural. In Middle Eastern society, the ageism often found in Western cultures is far less pronounced. For instance, in a study of age perceptions focused on the Kuwait market, Musaiger and D'Souza (2007) note that despite the extensive socio-cultural changes frequently associated with modernization, elderly family members still maintain an important status within the typically Kuwaiti family. Therefore, although the results of the current study demonstrate that the Age_{cog} measure is a useful and robust tool for future research into Middle Eastern consumer studies involving age-related issues, there is nevertheless a strong correlation between the overall Age_{cog} measure and actual chronological age. As such, rather than summarizing the five dimensions of Age_{cog} into a single cognitive age construct, future studies focused on the Middle Eastern market may choose to isolate the individual Age_{cog} components. For example, Musaiger and D'Souza (2007) show that physical appearance and body image are important in the classification of women as "elderly". Therefore, the individual components of the Age_{cog} construct may prove to provide greater predictive power for specific categories of consumer behaviors and lifestyles among Middle Eastern consumers than broadly defined cognitive age. Consequently, future studies may choose to focus on the specific sub-dimensions of Age_{cog}, and the development of multi-item scales for each distinct sub-dimension, including feel-age, look-age, act/do-age, interests-age, and think-age.

References

Anderson, N.N. (1967). The significance of age categories for older persons. *The Gerontologist*, 7(3), 164-168. https://doi.org/10.1093/geront/7.3_Part_1.164

Barak, B. and Schiffman, L.G. (1981). Cognitive age: a nonchronological age variable. in K.B. Monroe (ed.) *Advances in Consumer Research*, Provo, Utah: Advances in Consumer Research, 8, 602-606.

Barak, B. and Gould, S. (1985). Alternative Age Measures: A Research Agenda. in E.C. Hirschman and M.B. Holbrook (eds.), *Advances in Consumer Research*, Provo, UT: Association for Consumer Research, 12, 53-58.

Barak, B., Guiot, D., Mathur, A., Zhang, Y., and Lee, K. (2011). An empirical assessment of cross-cultural age self-construal measurement: evidence from three countries. *Psychology and Marketing*, 28 (5), 479-495. https://doi.org/10.1002/mar.20397

Birren, J.E. and Renner, J.V. (1977). Research on the psychology of aging: principles and experimentation. in *Handbook of the Psychology of Aging*, J.E. Birren and K.W. Schaie, Eds., NY: Van Nostrand Reinhold, Co., 3-38.

Catterall, M. and Maclaran, P. (2001). Body talk: questioning the assumptions in cognitive age. *Psychology and Marketing*, 18 (10), 1117-1133. https://doi.org/10.1002/mar.1046

Chang, C. (2008). Chronological age versus cognitive age for younger consumers. *Journal of Advertising*, 37 (3), 19-32. https://doi.org/10.2753/JOA0091-3367370302

Churchill, G.A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64-73. https://doi.org/10.2307/3150876

CIA World Fact book 2011. Retrieved July 20, 2011, from www.cia.gov/library/publications/the-world-factbook/geos/ku.hyml

Clark, M. (1967). The anthropology of aging: a new area for studies of culture and personality. *The Gerontologist*, 7 (1), 55-65. https://doi.org/10.1093/geront/7.1.55

Clark, S.D., Long, M.M., and Schiffman, L.G. (1999). The mind-body connection: the relationship among physical activity level, life satisfaction, and cognitive age among mature females. *Journal of Social Behavior and Personality*, 14, 221-240.

Cleaver, M. and Muller, T.E. (2002). I want to pretend I'm eleven years younger: subjective age and seniors' motives for vacation travel. *Social Indicators Research*, 60 (1-3), 227-241. https://doi.org/10.1023/A:1021217232446 https://doi.org/10.1007/978-94-015-9970-2_11

Eastman, J.A. and Iyer, R. (2012). "The relationship between cognitive age and status consumption: an exploratory look. *Marketing Management Journal*, 22 (1), 80-96.

Emory, C.W. (1980). *Business Research Methods, Revised Edition*, R.B Fetter and C. McMillan (eds.), Irwin: Homewood, Ill., 265-276.

Green, R.K., and Hendershott, P.H. (2007). The impact of age on retail sales. *Journal of Shopping Center Research*, 14 (1), 1-16.

Guido, G., Amatulli, C. and Peluso, A. (2014). Context effects of older consumers' cognitive age: the role of hedonic versus utilitarian goals. *Psychology and Marketing*, 31 (2), 103-114. https://doi.org/10.1002/mar.20679

Guiot, D. (2001). Antecedents of subjective age biases among senior women. *Psychology and Marketing*, 18 (10), 1049-1071. https://doi.org/10.1002/mar.1043

Hair, J.F. Jr., Celsi, M.W., Ortinau, D.J., and Bush, R.P. (2013). *Essentials of Marketing Research*, 3rd Edition, McGraw-Hill: New York, NY.

Heiens, R.A. (1991). A methodology towards measuring the cognitive age construct. in *Proceedings of the Twenty-Second Annual Meeting*, Enar A. Tunc and Jatinder N.D. Gupta (Eds.), Indianapolis, IN: Midwest Decision Sciences Institute, 357-360.

Iyer, R., Eastman, J.K., Sharma, R.W. and Eastman, K.L. (2017). The impact of cognitive age on materialism, status consumption and loyalty proneness of the Indian elderly. *Marketing Management Journal*, 27 (1), 48-62.

Iyer, R. and Reisenwitz, T.H. (2010). The impact of cognitive age: the boomers' perspectives. *Marketing Management Journal*, 20 (2), 28-41.

Jarvik, L.F. (1975). Thought on the psychobiology of aging. *American Psychologist*, 30, 576-583. https://doi.org/10.1037/h0076685

Karani, K.G. and Fraccastoro, K.A. (2010). "Resistance to brand switching: the elderly consumer," *Journal of Business and Economics Research*, 8 (12), 77-83. https://doi.org/10.19030/jber.v8i12.784

Kuwait Chamber of Commerce 2011, Retrieved July 20 from www.kuwaitchamber.org.kw

Kuwait Public Authority for Civil Information 2011, Retrieved July 27 from
https://rinnoo.net/en/v/kuwait/ministries-area/226/the-public-authority-for-civil-information-paci

Lawrence, J. (1974). The effects of perceived age on initial impressions and normative role expectations. *International Journal of Aging and Human Development*, 5, 369-391. https://doi.org/10.2190/2FU7-BGVT-QM43-KFEG

Lee, H. (2009). Good news for coffee addicts. *Harvard Business Review*, 87(6), 22-22.

Markus, H. and Wurf, E. (1987). "The dynamic self-concept: a social psychological perspective. *Annual Review of Psychology*, 38, 299-337. https://doi.org/10.1146/annurev.ps.38.020187.001503

Mathur, A. and Moschis, G.P. (2005). Antecedents of cognitive age: a replication and extension. *Psychology and Marketing*, 22 (12), 969-994. https://doi.org/10.1002/mar.20094

Moschis, G.P. and Mathur, A. (1993). How they're acting their age. *Marketing Management*, 2, 40-50.

Moschis, G.P. and Mathur, A. (2006). Older consumer responses to marketing stimuli: the power of subjective age. *Journal of Advertising Research*, 46, 339-346. https://doi.org/10.2501/S0021849906060326

Musaiger, A.O. and D'Souza, R. (2007). Role of age and gender in the perception of aging: a community-based survey in Kuwait. *Archives of Gerontology and Geriatrics*, 48 (1), 50-57. https://doi.org/10.1016/j.archger.2007.10.002

Myers, H. and Lumbers, M. (2008). Understanding older shoppers: a phenomenological investigation. *Journal of Consumer Marketing*, 25 (5), 294-301. https://doi.org/10.1108/07363760810890525

Rashid, S.M., Ghose, K. and Cohen, D.A. (2015). Brand identity: introducing renewed concept for coffee shops. *People: International Journal of Social Sciences*, 1 (1), 1056-1075. https://dx.doi.org/10.20319/pijss.2015.s21.10561075

Richelieu, A. and Korai, B. (2014). The consumption experience of Tim Hortons' coffee fans. *Qualitative Market Research: An International Journal*, 17 (3), 192-208. https://doi.org/10.1108/QMR-06-2012-0032

Rosenberg, M. (1979). *Conceiving the Self*. New York, NY: Basic Books.

Sirgy, M.J. (1982). Self-concept in consumer behavior: a critical review. *Journal of Consumer Research*, 9 (3), 287-299. https://doi.org/10.1086/208924

Sudbury, L. and Simcock, P. (2009). Understanding older consumers through cognitive age and the list of values: a U.K.-based perspective. *Psychology and Marketing*, 26 (1), 22-38. https://doi.org/10.1002/mar.20260

Teller, C., Gittenberger, E. and Schnedlitz, P. (2013). Cognitive age and grocery store patronage by elderly shoppers. *Journal of Marketing Management*, 29 (3-4), 317-337. https://doi.org/10.1080/0267257X.2013.766627

Thurstone, L.L. (1927). A law of comparative judgement. *Psychological Review*, 34, 273-286. https://doi.org/10.1037/h0070288

Van Auken, S. and Barry, T.E. (1995). An assessment of the trait validity of cognitive age measures. *Journal of Consumer Psychology*, 4 (2), 107-132. https://doi.org/10.1207/s15327663jcp0402_02

Van Auken, S., Barry, T.E. and Bagozzi, R.P. (2006). A cross-country construct validation of cognitive age. *Journal of the Academy of Marketing Science*, 34 (3), 439-455. https://doi.org/10.1177/0092070304270996

Wei, Y. and Talpade, S. (2009). Materialism of mature consumers in China and USA: a cross-cultural study. *Journal of International Business and Cultural Studies*, 2, 1-14.

Yin, K.Y., Bing, H.W., Yusof, H., Zakariya, Z, and Karim, N.A.A. (2016). A structural equation modeling approach to validate questionnaire peer learning using concept cartoons. *People: International Journal of Social Sciences*, 2 (1), 433-443. https://dx.doi.org/10.20319/pijss.2016.s21.433443